

Testing the Bridge



An Evaluation of the Effectiveness
of The Salvation Army's Bridge
Programme Model of Treatment

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Testing the Bridge: An Evaluation of the Effectiveness of The Salvation Army's Bridge Programme Model of Treatment

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Glossary of terms

Bridge Programme: Bridge Programme Model of Treatment.

Review: The activity that the University of Otago was contracted to do by The Salvation Army New Zealand, Fiji and Tonga Territory, involving administering questionnaires, analysing questionnaire data, reviewing literature, and reporting data and recommendations. The ultimate goal of the evaluation was to provide an overview of the current effectiveness of the Bridge Programme (using data from questionnaires, and comparing Salvation Army data to data in the literature), and to draw conclusions for future recommendations (based on recommended, evidence-based practice).

Evaluation: The administration of questionnaires, and analysis of questionnaire data, to measure change in outcomes after treatment on the Bridge Programme.

Questionnaires: The battery of psychometric measures and questions that were administered to participants to measure outcomes associated with substance use.

Evaluation time-points:

- *Baseline* The administration of questionnaires prior to Bridge Programme treatment.
- *End of Treatment* The administration of questionnaires immediately following Bridge Programme treatment.
- *Follow-up* The administration of questionnaires 3 months following Bridge Programme treatment.

Alcohol and drug problems: Used to describe the alcohol and drug problem field, and the literature relating to this field. Encompasses terms such as alcohol and drug difficulties, substance problems, addiction, AOD.

Substance use: Used to describe the behaviour of alcohol and/or drug use. Also referred to in the literature as drug or alcohol use or abuse.

Clients: Individuals who had been admitted to the Bridge Programme (so were eligible to participate in the study).

Participants: Individuals who had been admitted to the Bridge Programme, who had also provided consent to take part in the study.

Salvation Army Centre: The Salvation Army branch in which the Bridge Programme was delivered.

Twelve Step Facilitation Programmes (TSF): Used to describe any version of a 12 Step programme.

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From a purely symbolic standpoint, it is rather appropriate that The Salvation Army New Zealand, Fiji and Tonga Territory chose the University of Otago to enter with them into a Memorandum of Understanding to carry out independent, evidence-based assessment and evaluation of The Salvation Army's Social Programmes. It was in 1865, that William Booth, a London minister, took his message from the comfort of his pulpit on to the streets where he could reach the poor, the homeless, the hungry, and the destitute. The Salvation Army was born out of these beginnings in 1878. Less than a decade later, in 1883, The Salvation Army commenced its work in New Zealand — in Dunedin.



Executive Summary

ES.1 Background

In 2011, the University of Otago and The Salvation Army New Zealand, Fiji and Tonga Territory entered into a Memorandum of Understanding (MOU) in relation to researchers at the University providing independent, evidence-based assessment and evaluation of The Salvation Army's Social Programmes. The Salvation Army prioritised evaluation of their Bridge Programme Model of Treatment, a treatment service for people whose lives have been affected by the harmful use of, or dependency on, alcohol or drugs, as the starting point for this collaboration.

This evaluation of The Salvation Army's Bridge Programme Model of Treatment is based on initial discussions that the University of Otago research team had with The Salvation Army in 2012 during which The Salvation Army specified the questions and objectives that they wanted the research to address. These were around evaluating the effectiveness of the Bridge Programme in reducing harmful substance use and in improving functional outcomes (i.e., the person's social situation).

The researchers extended and further defined the original set of questions and objectives requested by The Salvation Army, particularly in relation to the outcomes to be measured. Assessment of multicomponent outcomes (i.e., not just outcomes related to substance use) is in keeping with current recommended research practice and key outcomes expected from funding bodies such as the Ministry of Health or District Health Boards. Additionally, as one of the unique key components of the Bridge Programme is the spirituality component (i.e., The Salvation Army is a Christian organisation dedicated to spirituality through social action), we also examined the role of spirituality in the addiction recovery process.

To evaluate the Bridge Programme, the researchers thought that it was important not only to examine the treatment outcomes of the programme but to also examine how Bridge Programme outcomes compared to other treatment programme outcomes and whether the Bridge Programme used evidence-based treatment modalities in its Model of Treatment. Specifically, the present evaluation examined the following questions:

1. Does the Bridge Programme Model of Treatment reduce or stop harmful substance use by clients attending the programme?
2. Does the Bridge Programme Model of Treatment improve real-world functional outcomes for clients attending the programme (i.e., health, social and vocational functioning, quality of life, activity increase, and decrease in criminal offending)?
3. Does the Bridge Programme Model of Treatment alter changeable personal factors that are related to good treatment outcome (e.g., increased motivation for treatment, self efficacy, internal locus of control)?
4. How does the Bridge Programme Model of Treatment measure up to national and international standards for substance abuse treatment programmes?
5. What is the role of spirituality in the Bridge Programme Model of Treatment?

ES.2 Method

The evaluation was conducted via four separate research components:

1. A literature review of best-practice guidelines, both internationally and specifically related to New Zealand and New Zealand Māori, and a comparison of the Bridge Programme Model of Treatment components with these best-practice guidelines.
2. A 12-month prospective study conducted nationwide that measured specific treatment outcomes for Bridge Programme clients related to reduction in substance use, improvement in functional outcomes in health, social, and vocational functioning, quality of life, and criminality. Additional outcomes measured were related to changeable personal factors related to good outcome to assess if these changed during Bridge Programme treatment. Treatment outcomes were measured at baseline (i.e., prior to Bridge Programme treatment), at end of treatment, and at a 3-month follow-up.
3. A systematic review of the published scientific literature relating to treatment outcomes in studies of substance-use, and comparison of key treatment outcomes from these published studies to the Bridge Programme's key treatment outcomes.
4. A mixed-method approach using both quantitative (i.e., using a validated psychometric measure of spirituality) and qualitative (i.e., through respondents' answers to open-ended questions) data collection to examine the role of spirituality in the Bridge Programme.

ES.3 Key Findings

1. **Literature review and the Bridge Programme Model of Treatment in the context of best practice guidelines internationally and within New Zealand**
 - The Salvation Army report that the Bridge Programme Model of Treatment contains 4 components, Partnership, Community Reinforcement Approach [CRA], The Twelve Step Recovery Journey (referred to in the literature as the Twelve Step Facilitation Approach [TSF]), and The Salvation Army aspect.
 - The literature review demonstrated multiple evidence-based treatment approaches recommended for alcohol and drug treatment. Recommended approaches include the CRA and the TSF, which are major aspects of the Bridge Programme.
 - The key elements of the Bridge Programme reflect the use of evidence-based approaches (CRA and TSF), and recommended best practice (partnership).
 - The Salvation Army aspect appears to represent guiding principles of service delivery, rather than a specific treatment component per se. Relevant literature suggests that the principles underlying The Salvation Army aspect are likely to be in line with best practice.

2. A prospective nationwide study examining treatment outcomes for persons who entered the Bridge Programme Model of treatment

- 325 clients of the Bridge Programme consented to participate in the evaluation and 225 of these participants completed a therapeutic dose of Bridge Programme treatment (i.e., completed 4 weeks or more of treatment).
- Participants who completed a therapeutic dose of Bridge Programme treatment had statistically significant reductions in substance use and in the severity of their substance use at the end of treatment to a level that would have been clinically and personally salient. These improvements were maintained at a 3-month follow-up.
- Participants who completed a therapeutic dose of Bridge Programme treatment had statistically significant improvements in all functional outcomes measured. That is, participants had improved physical and mental health, an increased quality of life, a reduction in criminal activity, and a reduction in negative consequences related to substance use and social problems. The improvements were found both at end of treatment and maintained at a 3-month follow-up. Vocational status was improved at follow-up.
- Participants who completed a therapeutic dose of Bridge Programme treatment shifted on changeable personal factors related to good treatment outcome. That is, at the end of treatment, participants' evidenced positive changes in motivational status, had increased self-efficacy not to use substances, and a more internal locus of control (i.e., they felt that they were in control of what happened in their lives).
- **Caveat:** Because we analysed treatment outcome data on those who completed a sufficient dose of Bridge treatment, we can only comment on the effectiveness of the programme for those who completed treatment. Furthermore, although at the end of treatment, the majority of participants (76% of participants who received a dose of treatment) completed assessment measures, at follow-up, only approximately half of the participants completed assessment measures. Higher rates of assessment data at follow-up would increase the generalisability of the results of our evaluation.

3. Comparison of the Bridge Programme Model of Treatment outcomes to the published scientific literature examining treatment outcomes in studies of substance use

- A systematic review of the literature resulted in the selection of 17 published studies for comparison with the results of the evaluation of the Bridge Programme. Examination of these studies suggests that a range of treatment approaches are effective in reducing both the use of alcohol and drugs and the severity of this use, and that these outcomes are maintained to some extent at follow-up.
- Additionally, the reviewed articles indicate a trend towards treatment for alcohol and drug use resulting in the improvement of secondary consequences of use such as social relationships, perceived quality of life, and physical and mental health.

- When we compared the Bridge Programme treatment outcomes to the published international treatment outcomes, the Bridge Programme compared favourably. That is, the improvements in substance use and severity, and consequential outcomes following Bridge Programme treatment are similar to outcome trends reported in international studies. Furthermore, in general, the strength of the improvements appeared to be larger for Bridge Programme treatment outcomes in comparison to reviewed international studies.
- Overall, in comparison to the published scientific literature relating to treatment outcomes, the Bridge Programme compares favourably with other treatment programmes in terms of producing key positive treatment outcomes for their clients.
- **Caveat:** Differences between each of the reviewed studies and the Bridge Programme Model of Treatment in terms of type of treatment, length and intensity of treatment, and follow-up delays made direct comparisons difficult.

4. Spirituality and the Bridge Programme

- Spirituality is a key component of the Bridge Programme Model of Treatment. Explicitly this is expressed through the Recovery Church, prayer, spirituality lifters/classes, and the higher power component of the 12 Step programme. There are also other subtle spiritual aspects of the programme such as focusing on meaning and purpose beyond addiction.
- The majority of participants held a broad understanding of spirituality, with a small but committed group equating it more directly with religion.
- Participants who completed a therapeutic dose of Bridge Programme treatment had statistically significant increases in spiritual beliefs. These increases were maintained at follow-up. Furthermore, an increase in spiritual beliefs was associated with a decrease in severity of alcohol and drug use.
- Most participants said that spirituality was important and that it had changed over the time of the programme. Many participants suggested that their belief system and what mattered most to them was their sobriety and abstinence. Self-awareness, including a general awareness of a generic spirituality, was an important theme in participants' responses. One of the strongest themes across all questions was family/whānau, that is, the importance of family in participants' lives, how much they mattered.

ES.4 Overall conclusion

The evaluation was conducted via four separate research components (i.e., the literature review in relation to evidence-based treatment practice, the prospective study examining Bridge Programme treatment outcomes, the systematic review comparing Bridge Programme treatment outcomes to other published treatment outcome studies, and the research examining spirituality). Taken together, the key findings of this evaluation provide strong evidence for the overall effectiveness of the Bridge Programme Model of Treatment.

ES.5 Recommendations

1. That The Salvation Army continues to measure Bridge Programme treatment outcome data to provide ongoing evidence of the effectiveness of the Programme.
2. That The Salvation Army standardises the collection of outcome data and the entry of this data into their SAMIS database so that this information can be used in the future to provide evidence of the effectiveness of the Bridge Programme.
3. The present evaluation did not evaluate the cultural sensitivity and the acceptability of the Bridge Programme for Māori and Pacific populations in particular. We strongly advocate that the cultural acceptability of the Bridge Programme be examined using mixed-methods approaches with key Māori stakeholders involved and Māori and Pacific Islander researchers conducting or leading the research.
4. The present evaluation confirmed that the Bridge Programme's approach used evidence-based treatment. It was not within the scope of the present evaluation to examine whether these evidence-based treatment approaches were used consistently across Salvation Army centres nor the fidelity of their use. We recommend, however, that The Salvation Army follows up on the fidelity to core treatment programme components
5. The present evaluation demonstrated that the spiritual components of the Bridge Programme were widely valued and deemed helpful. We recommend that the spiritual component is consistently included across all centres and programmes and that a broader and more inclusive definition of spirituality be incorporated.
6. Additional points to consider for future Bridge Programme treatment practice are the consideration of non-discharge of clients who engage in substance use during the programme, and whether less intensive interventions could be considered for clients with less severe substance use problems.

CHAPTER 1.

Introduction

1.1 Background to the Research

In 2011, The University of Otago and The Salvation Army New Zealand, Fiji and Tonga Territory entered into a Memorandum of Understanding (MOU) in relation to researchers at the University providing independent, evidence-based assessment and evaluation of The Salvation Army's Social Programmes. The Salvation Army prioritized evaluation of their Bridge Programme Model of Treatment a treatment service for people whose lives have been affected by the harmful use of, or dependency on, alcohol or drugs, as the starting point for this collaboration.

The Salvation Army's Bridge Programme was founded in Wellington in 1958, principally as a treatment service for alcohol addiction. However, the programme has grown substantially since it was first inaugurated and today, it is a multi-faceted treatment service for multiple alcohol and other drug addictions, working with around 1500 clients each year. The Salvation Army operates 15 Alcohol and Other Drugs (AOD) treatment centres nationwide via their Bridge Programme, two prison-based AOD programmes, and the Hauora Programme, a closed residential programme for members of the Notorious Chapter of the Mongrel Mob. The Bridge Programme is now seen as an integral part of national specialised AOD treatment services in New Zealand and offers residential, and intensive day programmes and outpatient addiction treatment services. The Bridge Programme's Model of Treatment is centred on 4 key components; Partnership, Community Reinforcement Approach, the 12 Step Recovery Journey, and The Salvation Army aspect.

1.2 Establishing the Focus of the Research

This evaluation of The Salvation Army's Bridge Programme Model of Treatment is based on initial discussions that the University of Otago research team had with The Salvation Army in 2012. During these discussions, The Salvation Army specified the questions and objectives that they wanted the research to address. These were namely, the effectiveness of the Bridge Programme in reducing harmful substance use and in improving functional outcomes (e.g., the person's social situation). The Salvation Army were also interested in what elements of the Bridge Programme were seen as effective for their clients and their families. The Salvation Army specified that they wanted an independent scientific review to provide funders with evidence around the effectiveness of the Bridge Programme in reducing harmful substance use and meeting specific Governmental and local-body outcome goals. People using The Salvation Army's services also want to know how the service is doing.

The researchers extended and further defined the original set of questions and objectives discussed with The Salvation Army, particularly in relation to the outcomes to be measured. Historically, research examining the effectiveness of alcohol or drug treatment programmes has focused on the effectiveness of the intervention on reducing harmful substance use. However, it is well recognised that there are a number of other consequential functional outcomes related to changes in harmful substance use and that these are important and also need to be taken into account (e.g., improved social and vocational functioning, reduction in offending, quality of life, and physical and mental health). Changes in these functional outcomes not only indicate the effectiveness of a treatment

programme in terms of real-world outcomes, but are also seen as protective for favourable long-term outcomes and the reduction of relapse.

Assessment of multicomponent outcomes (i.e., not just outcomes related to substance use) is in keeping with current recommended research practice, the Bridge Programme Treatment Model, and key outcomes expected from funding bodies such as the Ministry of Health or District Health Boards. Additionally, as one of the unique key components of the Bridge Programme is the spirituality component (i.e., The Salvation Army is a Christian organisation dedicated to spirituality through social action), we wanted to examine the role of this unique key element in the addiction recovery process.

Based on our discussions with The Salvation Army, we determined that the following questions were important:

1. Does the Bridge Programme Model of Treatment reduce or stop harmful substance use for clients attending the programme?
2. Does the Bridge Programme Model of Treatment improve real-world functional outcomes for clients attending the programme (i.e., health, social and vocational functioning, quality of life, increase in activity, and decrease in criminal offending)?
3. Does the Bridge Programme Model of Treatment alter changeable personal factors that are related to good treatment outcome (e.g., increased motivation for treatment, self efficacy, internal locus of control)?
4. How does the Bridge Programme Model of Treatment measure up to national and international standards for substance abuse treatment programmes? Specifically;
 - a. Does the Bridge Programme use evidence-based treatment components?
 - b. Is the Bridge Programme as effective as other national and international treatment programmes in reducing harmful substance use?
5. What is the role of spirituality in the Bridge Programme?
 - a. Does the Bridge Programme increase spiritual well-being
 - b. Does spiritual well-being matter in terms of treatment processes and outcomes?
 - c. Do spiritual practices and discussion of a higher power help in treatment processes?

1.3 The Research Team

The University of Otago research team consisted of a melding of research expertise across the fields of Psychology, Clinical Psychology, Psychiatry, Spirituality, Theology, and Biostatistics. The Principal Investigators were Dr Tess Patterson, Dr Julien Gross, and Dr Emily Macleod with Co-Investigators, Linda Hobbs, Dr Richard Egan, and Dr Claire Cameron. Dr Gavin Cape was the consulting psychiatrist on the team and Professor Andrew Bradstock was the consulting theologian.

The Salvation Army employed independent Research Assistants to assist the University of Otago research team, specifically to carry out the research procedures and collect the research data at each of The Salvation Army Addiction Centres. The research assistants were Tanja Ottaway Parkes, Phillipa Van Abs and Melinda Hayes (Auckland), Keryn Roberts and Chloe Shadbolt (Waikato), Allanah Elvy-Arnold, Paul Haycock and Aggy Setefana-Pue (Wellington), Penelope Fleming and Shiona Morrison (Christchurch), and Kieran Garner-Hanson (Dunedin).

1.4 The Research

The evaluation of the Bridge Programme consisted of a 12-month prospective study using a mixed-method approach (i.e., qualitative and quantitative)². We used a prospective study design so that we could standardise as much as possible the data collection process across treatment centres, use psychometrically-validated outcome measures, obtain subjective information from clients attending the Bridge programme, and measure outcome data at 3 specific time points; baseline (i.e., prior to start of treatment), end of treatment, and at 3-month follow-up (as practicable within the 12-month period designated for data collection). Although outcome measures are largely self-report or questionnaire data, we have also included corroboration of these reports from others³.

1.5 Outline of the Report

Chapter 1 provides an outline of the background to this evaluation of the Bridge Programme Model of Treatment. In the following 5 chapters, we consider each of the key questions. In Chapter 2, we examine the question, “Does the Bridge programme use evidence-based treatment components?” In Chapter 3, we examine the questions, “Does the Bridge Programme reduce or stop harmful substance use, improve functional outcomes, and/or produce changes on key personal factors that are related to good treatment outcome?” In Chapter 4, we examine the question, “Is the Bridge programme as effective as other national and international treatment programmes in reducing harmful substance use?” In Chapter 5, we examine the questions, “Does the Bridge programme increase spirituality?” and “Does spirituality and spiritual practices matter in treatment processes?” Finally, in Chapter 6, we provide concluding remarks and recommendations.

² We could not use existing data from The Salvation Army’s SAMIS database to evaluate the Bridge Programme because the data collected varied considerably from centre to centre and from client to client, and for the most part, did not use psychometrically-validated measures.

³ “Other report” was from a person who could corroborate the client’s report of current usage.

CHAPTER 2.

The Salvation Army Bridge Programme in the context of best practice guidelines internationally and within New Zealand

2.1 Introduction

It is well recognised nationally and internationally that there are a variety of alcohol and drug treatment programmes that are effective in reducing harmful substance use. The question is: how does the Bridge Programme Model of Treatment measure up to national and international standards for substance abuse treatment programmes? To answer this question, we reviewed the published scientific literature on evidence-based treatment components and compared the treatment components from these published studies to the key components of the Bridge Programme.

2.2 Objective

To evaluate the Bridge Programme Model of Treatment in the context of best practice guidelines internationally and within New Zealand.

2.3 Literature review of best practice guidelines internationally

2.3.1 Evidence-based treatment options

Systematic reviews of treatments for alcohol and drug problems have shown that there are multiple treatment approaches that meet the criteria for being evidence-based (Carroll & Onken, 2005; Dutra et al., 2008; Gossop, 2006; Miller & Wilbourne, 2002; National Institute on Drug Abuse, 2012; Power, Nishimi, & Kizer, 2005; Raistrick, Heather, & Godfrey, 2006). The treatment approaches that consistently rank amongst the most effective, and that are recommended by experts, include Brief alcohol interventions by non-specialists, Less intensive alcohol interventions by specialists (including Motivational Interviewing and Motivational Enhancement Therapy), Community Reinforcement Approach, Cognitive Behavioural Therapy [CBT] (including Relapse Prevention), 12 Step Approaches, Family Therapy based on Cognitive Behavioural Principles, and Pharmacotherapy.

In addition, although aftercare/follow-up care is not routinely identified in the literature as a specific component of treatment, aftercare appears to maximise the long-term success of treatment for alcohol problems (Raistrick et al., 2006).

Treatment for alcohol and drug problems occurs on a continuum, depending on the severity of the difficulties experienced. In general, experts recommend that before appropriate treatment is prescribed, individuals should be screened and assessed for alcohol or drug difficulties, using evidence-based approaches (Power et al., 2005; Raistrick et al., 2006). Brief intervention should be the first approach tried, with more intensive treatment as required (Power et al., 2005; Raistrick et al., 2006). Any mental or physical health co-morbidities should be managed using additional evidence-based treatments (Power et al., 2005).

Brief interventions by non-specialists (e.g., GPs, nurses) are targeted at individuals with mild alcohol problems who are likely to respond to brief, one-off sessions of education or motivational

enhancement (Raistrick et al., 2006). There is mixed evidence for brief intervention as a treatment for drug problems (Carroll & Onken, 2005; Power et al., 2005).

Less intensive interventions target individuals who have sought help for moderate alcohol or drug problems, and usually have social support (Raistrick et al., 2006). Less intensive interventions usually take up to 4 sessions, and may be based on education, condensed CBT, or therapy with a significant other (see full descriptions below), and/or **Motivational Interviewing [MI]** or **Motivational Enhancement Therapy [MET]** (Raistrick et al., 2006). MI and MET approaches involve helping individuals to see the consequences associated with their substance use behaviour, trying to motivate them to commit to change, and helping them to identify how they can change themselves (Miller, Zweben, DiClemente, & Rychtarik, 1999). Follow-up support is critical to the success of brief interventions (Raistrick et al., 2006).

Research shows that, for the appropriate participants, less intensive interventions can be as effective as a 12 step programme, or 12 weeks of CBT (Raistrick et al., 2006; Shand, Gates, Fawcett, & Mattick, 2003). The evidence for shorter interventions is generally limited to those with mild to moderate difficulties with alcohol or drugs (Power et al., 2005; Raistrick et al., 2006). For individuals who have moderate to severe alcohol and/or drug problems, a number of further treatment options are recommended as evidence-based:

Twelve Step Facilitation Programmes [TSF] are based on the premise that an alcohol or drug problem is a disease that can be addressed across 12 key steps involving meetings with peers, and recognition of a spiritual higher power to support the change process (Nowinski, Baker, & Carroll, 1999). The most widely known TSF programme is Alcoholics Anonymous (Ferri, Amato, & Davoli, 2006). TSF programmes have similar levels of effectiveness to other interventions for alcohol (e.g., CBT or MET approaches)(Ferri et al., 2006). TSF programmes are also recommended for use to treat other substance use (Gossop, 2006; Power et al., 2005).

Cognitive Behavioural Therapy [CBT] is an umbrella term that describes the general overarching principles of a number of therapeutic techniques. In general, CBT approaches for alcohol and drug problems focus on generating active participation to change behaviour, and addressing the social context in which behaviour occurs (Raistrick et al., 2006). Individuals address dysfunctional thoughts and behaviours that are associated with alcohol or drug use by learning more functional skills and attitudes (e.g., avoiding trigger situations, refusing drinks, coping with urges)(Kadden et al., 1995). Based on comprehensive reviews of the literature, it is widely accepted that CBT is an evidence-based approach for treating both drug and alcohol difficulties (Dutra et al., 2008; Raistrick et al., 2006). Evidence-based examples of specific CBT techniques include Behavioural Self-Control training (including self-monitoring and self-reward systems), Skills training (e.g., learning skills to replace drinking behaviours, learning coping skills for trigger situations), and **Relapse Prevention** (use of CBT techniques to plan for reducing risk of relapse)(Raistrick et al., 2006).

The **Community Reinforcement Approach [CRA]** is a treatment programme for people with alcohol and drug problems that is based on cognitive-behavioural principles. The central tenet is that a person's environment has a major influence on their substance use behaviour. For people with alcohol or drug problems, their substance use is highly rewarding. As such, the goal of CRA is to rearrange a person's environment so that there are social, familial, work, and leisure benefits that

result from avoiding substances, and limited benefits from using substances; that is, the person is rewarded by reducing their substance use. CRA involves motivational interviewing to help participants to commit to change, and a trial period of sobriety, to help participants ease into abstinence. Next, through functional analysis, each person's individualised treatment plan is designed to address his or her weaknesses or triggers, and to build the person's required skills and sources of functional rewards (e.g., through leisure, vocational, or social channels). CRA works broadly within each person's community, and often includes relevant significant others.

Research consistently identifies CRA as an effective treatment options for drug and alcohol problems (Meyers, Roozen, & Smith, 2011; Miller & Meyers, 1999; Petry & Barry, 2011; Roozen et al., 2004; Smith, Meyers, & Miller, 2001). CRA is particularly effective when it includes pharmacological treatment (Azrin, Sisson, Meyers, & Godley, 1982). CRA is also a treatment of choice for those who have relapsed after treatment (Raistrick et al., 2006).

Contingency management, or the provision of tangible rewards (e.g., vouchers) for desirable behaviour (e.g., abstinence), is an effective treatment for drug and alcohol problems; this approach is usually incorporated into CBT or CRA approaches (Dutra et al., 2008; Petry & Barry, 2011).

Family Therapy based on Cognitive Behavioural Principles. In general, involvement of family members or significant others improves the success of treatment for drug and alcohol problems (Carroll & Onken, 2005; Raistrick et al., 2006). Family members may be involved as part of CRA, or in a stand-alone family-based CBT treatment. Examples of specific treatments that are recommended as evidence-based include Social Behaviour and Network Therapy, and Cognitive Behavioural Marital Therapy (Raistrick et al., 2006).

Pharmacotherapy is recommended as an adjunct to psychosocial treatment, particularly for individuals who have problems with alcohol or opioids (Power et al., 2005).

2.3.2 Factors affecting the success of treatment

Research shows that, although there are multiple treatments that are effective for alcohol and drug problems, not all programs work for all individuals; that is, different treatments, and different combinations of treatments, are likely to work for different people (Gossop, 2006; Raistrick et al., 2006). As yet, there is no clear way to determine which treatment type will work for whom. For example, Project MATCH, which is one of the largest randomised controlled trials of treatments for alcohol problems (comparing CRA, MET, and TSF with no-treatment), showed that TSF, CRA, and MET worked to reduce alcohol consumption, to a similar level, regardless of pre-existing personality traits (Longabaugh & Wirtz, 2001).

Despite the lack of evidence for how best to match specific treatments to individuals, research has identified a number of broad factors that affect the success of most treatments.

The type of substance that is used can influence the effectiveness of treatment. In a meta-analysis of controlled studies of the effectiveness of psychosocial drug treatments, Dutra et al. (2008) found that individuals with cannabis and cocaine problems were most likely to respond to treatment, compared to those who used other substances, although individuals who used cocaine also had the

highest risk of dropping out. Dutra et al. also found that individuals who used more than one substance were least likely to benefit from treatment.

Furthermore, the success of each therapeutic approach relies on the therapist. At least 10% (and as much as 50%) of the variance in treatment outcomes for alcohol problems can be accounted for by the therapeutic alliance, meaning that therapists must establish a good working relationship with their clients to maximise treatment success (Raistrick et al., 2006). The success of a particular therapy is also likely to be dependent on therapists being appropriately trained to deliver the intervention with fidelity (Luborsky, McLellan, Woody, O'Brien, & Auerbach, 1985; Raistrick et al., 2006).

During the treatment planning process, it is important to establish clear goals around drinking behaviour, because depending on whether the goal is abstinence or moderation, treatment approaches vary in effectiveness; as such, treatment should be tailored based on the drinking goal (Raistrick et al., 2006).

There is also evidence that particularly for those with more severe substance use difficulties, longer treatment retention, and greater treatment intensity, will maximise outcomes (Gossop, 2006). Furthermore, experts recommend that relapse while in treatment should not lead to a person being terminated from a treatment programme (Power et al., 2005).

Finally, individual selection factors might be one of the major factors determining the success of problematic substance use treatment for each individual (Cutler & Fishbain, 2005). In Project MATCH, the researchers suggested that overall, the factor that was most likely to account for treatment success was the individual's decision to enter, and commit to, treatment (Cutler & Fishbain, 2005). That is, more motivated participants, with higher levels of self-efficacy, are more likely to succeed in treatment.

2.4 Literature review of best practice guidelines specifically related to New Zealand and New Zealand Māori

Matua Raki, the National Addiction Workforce Development Centre in New Zealand, recently published a guide to the current treatment of drug and alcohol problems in New Zealand (Matua Raki, 2014). This guide outlines that the treatment of problematic substance use in New Zealand follows an evidence-based model, in which drug and alcohol problems are treated on a continuum. That is, milder alcohol and drug problems are treated using brief interventions, with more severe problems being treated with more specialised interventions. Given that both New Zealand Māori and Pacific people are over-represented amongst those with drug and alcohol problems in New Zealand (Oakley Browne, Wells, & Scott, 2006), it is important to identify intervention options that are acceptable and effective for these populations. Unfortunately, to our knowledge, there are no existing systematic reviews of the effectiveness of evidence-based drug and alcohol interventions specifically for Māori or Pacific people. Research has shown, however, that for drug and alcohol interventions to be acceptable to Māori and Pacific people, cultural values should be recognised, respected, and incorporated into the treatment (Huriwai, Robertson, Armstrong, Kingi, & Huata, 2001; Huriwai, Sellman, Sullivan, & Potiki, 2000; Robinson et al., 2006). For drug and alcohol interventions to be culturally sensitive, mainstream evidence-based interventions can be modified to

accommodate cultural beliefs and practices, or interventions can be designed specifically to address cultural needs (Durie, 2003); the New Zealand Government supports both approaches (Ministry of Health, 2010, 2012).

To address cultural requirements within mainstream services, all drug and alcohol problem services in New Zealand are required to adhere to principles of the Treaty of Waitangi, and health professionals are generally required to maintain cultural competence (New Zealand Public Health and Disability Act, 2000). That is, health workers should be familiar with Māori and Pacific people's cultural needs, and offer services in a manner that accommodates these (Ministry of Health, 2010; Northern DHB Support Agency Ltd., 2010; Robinson et al., 2006). Drug and alcohol treatment services are also available that have been developed specifically for Māori or Pacific people, based on their respective cultural values. For example, whānau are usually a central part of drug and alcohol problem services based on Māori cultural values, and the services may also include treatment components such as karakia (prayer), mirimiri (massage), and wai karakia (blessing with water) (Matua Raki, 2014). There is limited evidence regarding whether mainstream or culturally-specific approaches are more or less effective than each other; what is likely to be most important, is that both mainstream and cultural services work alongside and with each other (Durie, 2003).

2.5 Compare and evaluate the Bridge Programme Model of Treatment with these best practice guidelines

The following section outlines the key elements of the Bridge Programme model of treatment, and some of the more specific components within the model, and details how these elements and components fit with the current evidence or recommendations regarding best practice treatment of drug and alcohol problems.

The Salvation Army's Bridge Programme is based on a model that focuses on individualised treatment in a continuum approach. The treatment offered by The Salvation Army is best described as an intensive intervention, suited for those with moderate to severe addiction problems.

2.5.1 Four key elements

According The Salvation Army (information obtained from the Model of Treatment Salvation Army Bridge Programme document), there are four key elements of the Bridge Programme:

- 1) Partnership
- 2) CRA
- 3) The Twelve Step Recovery Journey
- 4) The Salvation Army

1) The **Partnership** element reflects The Salvation Army's recognition of the need to respect and work with each individual, on a case-by-case basis, to maximise each person's treatment. This approach is in line with best-practice recommendations that drug and alcohol treatment be tailored to individual needs (National Institute on Drug Abuse, 2012; Raistrick et al., 2006).

The individualised partnership approach is also in line with recommendations that addiction services should address cultural needs to engage ethnic minorities (Durie, 2003; Raistrick et al., 2006). The

partnership element encompasses The Salvation Army's commitment to the Treaty, and commitment to working in a culturally sensitive manner with all Bridge Programme participants. Experts recommend that culturally sensitive treatments should focus on recognition and respect of the *individual's* personal beliefs, rather than practicing in a generic "cultural" way (National Institute on Drug Abuse, 2012; Raistrick et al., 2006). Our review did not elicit specific data regarding whether The Salvation Army provide a service that is acceptable to individuals from different cultural backgrounds, including Māori and Pacific populations. For example, an individualised treatment plan with partnership as a central tenet for Māori would likely include involvement of whānau or relevant significant others, and recognising and incorporating a person's cultural identity and connection to their heritage (Huriwai et al., 2000, 2001).

Although the specific cultural sensitivity of the Bridge Programme for Māori and Pacific people can not be determined from our current evaluation data, if the Bridge Programme provides treatment based on Partnership, with respect for, and incorporation of, individual and cultural needs, then it is likely to be a service that fits within the New Zealand Ministry of Health's mental health and addiction service plan (Ministry of Health, 2012).

2) The **CRA** element is evidence-based, and recommended in the literature. CRA includes components of treatment such as building motivation, sobriety sampling, functional analysis, positive reinforcement, behavioural rehearsal, and involvement of significant others, in a flexible manner based on individual needs.

3) The **TSF** element is evidence-based, and recommended in the literature.

4) The Salvation Army element refers to the fact that The Salvation Army is a Christian church, with a mission to help those in need through the use of spiritual guidance, and practical assistance. Rather than representing a discrete treatment element of the Bridge Programme, The Salvation Army aspect appears to be better described as an ethos, guiding the delivery of the other three aspects of the Bridge Programme (Partnership, CRA, and TSF). With specific regard to problematic substance use, The Salvation Army aspect represents a commitment to helping those with drug and alcohol problems by 1) providing **spiritual** comfort and facilitating spiritual renewal, and 2) providing **practical** assistance using evidence-based best practice.

The practical support arm of The Salvation Army is clearly grounded in evidence-based principles, as outlined above in the aspects of Partnership, CRA, and TSF.

Regarding the spiritual arm of The Salvation Army aspect, and its contribution to treatment, research supports the use of specific spirituality-based therapies (i.e., TSF, see also Chapter 5 of this document). In addition, a person's spirituality in general appears to be associated with positive outcomes in addiction treatment (Cook, 2004; Stewart, 2008). Furthermore, the recognition and acceptance of individual spiritual beliefs reflects partnership with the individual, and cultural sensitivity, thus aligning with recommended practice. Nonetheless, various authors caution that spiritual needs are highly individualised and thus clinicians should not assume that TSF or other spiritual-based interventions will appeal to all clients (Arnold, Avants, Margolin, & Marcotte, 2002; Dermatis, Guschwan, Galanter, & Bunt, 2004; Neff, Shorkey, & Windsor, 2006).

Overall, the literature base would suggest that spiritual guidance is likely to contribute to positive treatment outcomes. The results of the current evaluation support this notion; participants valued the spiritual element of The Salvation Army and indicated that it contributed to their recovery process (see Chapter 5).

2.5.2 Specific Treatment Components

Within the four key elements of the Bridge Programme, there are a number of specific treatment components that The Salvation Army reported using. Given that The Salvation Army operates multiple services, in multiple locations around the country, and that treatment programmes are tailored for the specific environment and individuals, the specific components used by each participant of the Bridge Programme varies. By reviewing The Salvation Army's documentation, and the questionnaires that were administered within the evaluation process, we identified that the following specific components could be a part of an individual's treatment, within the four key elements:

- 1) Building motivation
- 2) Individual counselling/coordination
 - a person who takes the role of partner, advocate, negotiator, listener, teacher, advisor, and/or cultural support, and facilitates a personal treatment plan
- 3) Relationship counselling (with family and/or close friends)
- 4) Group sessions/activities
- 5) AA/NA meetings
- 6) Recovery Church
- 7) Health Care – full health assessment and access to health care professionals
- 8) Follow up/aftercare plans

Building Motivation is a recommended practice, as long as the practice is based on motivational interviewing or motivation enhancement therapy principles.

Individual Counselling/Coordination would be considered a recommended practice as long as it is based on CRA or CBT principles. This may also be a forum in which cultural support is provided, in line with Ministry recommendations (Lambert & Barley, 2001; Ministry of Health, 2012).

The evidence and recommendations support the use of **Relationship Counselling**, provided that this counselling is grounded in CRA or CBT principles.

The use of **Group Sessions/Activities** reflects a method of delivery of treatment, rather than a treatment component itself. As such, provided that the content of the group sessions was derived from CRA, CBT, or TSF principles, this component of treatment would constitute a recommended or evidence-based practice.

AA/NA Meetings are recommended as an evidence-based treatment.

As part of the review, we did not gather details regarding **Recovery Church** and what this entails. We are not aware of any research specifically pertaining to the effectiveness of Recovery Church. Literature regarding treatments for alcohol and drug problems suggests that religious or spiritual

support may facilitate recovery from alcohol and drug problems. As such, it is possible that Recovery Church would be an effective addition to treatment for clients who are comfortable with religious or spiritual support, but we do not know for sure (see Chapter 5).

The provision of access to **Health Care** would be considered an adjunct to addiction treatment, and the evidence fully supports connecting with services that can provide treatment for co-morbid physical and mental health problems.

Follow-up/Aftercare is also a recommended addition to treatment.

2.6 Conclusions

In sum, the four key elements of The Salvation Army generally reflect the use of evidence-based approaches (CRA and TSF), and recommended best practice (partnership). Given that the spiritual arm of The Salvation Army aspect is not a discrete treatment component that can be specifically evaluated in the literature, we cannot comment on specific evidence or recommendations pertaining directly to this spiritual support. A more detailed examination and discussion of the spiritual arm of The Salvation Army aspect is provided in Chapter 5 of the report. Drawing from relevant literature, however, The Salvation Army (practical and spiritual) aspect is likely to be in line with best practice. The specific treatment components used also fit within recommended practice.

2.7 Caveat

Based on information from The Salvation Army, we have assumed that all Bridge Programme participants received treatment involving the elements of Partnership, CRA, TSF, and The Salvation Army. We did not, however, examine the fidelity with which each of these elements was delivered. Given the individualised nature of each Bridge Programme participant's treatment, and the differences in the delivery of treatment across centres, it was also not possible to identify the fidelity of any of the additional components of treatment. We recommend that The Salvation Army consider investing future resources into determining and ensuring that evidence-based principles are guiding all aspects of their Bridge Programme, both at a theoretical, over-arching level, and at a practical, specific components level.

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CHAPTER 3.

Evaluation of the effectiveness of The Salvation Army's Bridge Programme

3.1 Introduction

The central goal of treatment for substance use disorders is to either substantially reduce or stop the substance use, or to reduce hazardous substance use. To be viewed as effective, treatment needs to not only be effective in the short term (i.e., at the time of treatment), but for a significant period of time following end of treatment.

3.1.2 Measuring treatment effectiveness

In the alcohol and drug (AOD) treatment field, treatment outcome (i.e., whether the treatment is effective or not) is measured primarily in terms of reduction or elimination of the substance use behaviour (Donovan et al., 2012; Tiffany, Friedman, Greenfield, Hasin, & Jackson 2012a). Measuring this reduction in substance use is done in a variety of ways, via self-report measures (e.g., answers to a questionnaire), biological measures (e.g., blood or urine testing), and/or obtaining corroborating information from others (see Donovan et al., 2012 for a review). Treatment outcome studies typically involve one or two indices of primary outcome measures (e.g., days of use per month, days abstinent, days of non-hazardous use, drinks per day, substance-use severity, and/or specific biological traces, markers of substance use (Carroll et al., 2006; LoCastro et al., 2009; Morgenstern et al., 2003).

Evaluating the effectiveness of a treatment programme solely by measuring reduction in substance use, however, does not take into account the consequential harm or the unwanted effects that frequently accompany hazardous substance use (e.g., poor health, criminality, loss of vocation, social conflict, poor quality of life and morbidity). These consequential factors have a high burden of cost for the individual, his or her family, and society. Researchers now argue that these consequential factors also need to be taken into account when considering treatment effectiveness and treatment outcome (Donovan et al., 2012; Tiffany et al., 2012a; Tiffany, Friedman, Greenfield, Hasin, & Jackson, 2012b). That is, it is not just enough to reduce or eliminate substance use (primary outcome); treatment must also facilitate improvements in consequential factors (i.e., secondary outcomes), as these are meaningful and relevant at the clinical, personal, and societal level.

In addition to primary (i.e., substance use behaviour) and secondary (consequential factors of the substance use behaviour) outcome measures, research demonstrates that there are a number of other predictive or mediating factors that may influence the success of treatment (see Adamson, Sellman, & Frampton, 2009). As discussed extensively in Chapter 2, specific factors likely to affect successful outcomes include good therapeutic alliance, agreement with the treatment goal, motivation for treatment, and for individuals with more severe problems, more intense and longer treatment. Other factors that have been identified elsewhere in the research as being related to successful treatment outcomes are high self-efficacy, that is, the belief in one's ability to execute the behaviours needed to produce a desired effect (Bandura, 1977; see Kadden & Litt, 2011 for a review), internal locus of control (Koski-Jannes, 1994), and retention in treatment (Moos & Moos, 2003; Zhang, Friedmann & Gerstein, 2003). In contrast, mental illness severity has been related to

poorer outcomes (Schager & Najavits, 2007; Siegfried, 1998). Experts in the AOD field recommend that these predictive or mediating factors should also be considered for inclusion in standard evaluation outcomes (see Tiffany et al., 2012a, 2012b).

While there is consensus that evaluating treatment effectiveness should include measures of both primary substance use and secondary consequential outcomes, and should consider measuring mediating factors related to treatment outcome, there is no consensus as to what specific outcomes should be measured and what specific measures should be used (see Tiffany et al., 2012a for a summary). Given this lack of consensus, studies evaluating treatment effectiveness have varied in the domains that were measured and how they were measured. For example, to evaluate primary outcomes, some researchers have measured hazardous substance use (Anton et al., 2006) or severity of use (Morgenstern, Blanchard, Morgan, Labouvie, & Hayaki, 2001), whereas other researchers have measured days of substance use (Mattson, 1993). To evaluate secondary outcomes, some researchers have measured consequential outcomes such as physical health or psychiatric severity (LoCastro, Potter, Donovan, Couper, & Pope 2009) whereas other researchers have measured perceived quality of life (Drummond et al., 2009). Experts in the AOD field have considered whether a specific core group of outcome measures could be recommended for use to obtain consistency across the AOD field and obtain across-study comparability. Although some recommendations have been made (e.g., Tiffany et al., 2012a), a core standardised set of outcome measures (i.e., a standardised assessment battery) has not yet been adopted by researchers in the AOD field. Furthermore, it is unlikely that a core set of standardised measures could easily be adopted given that the battery of assessments needed will alter depending on the aims of the research and the particular population being considered.

It is well recognised that for any given outcome measure, or battery of outcome measures, to provide useful information, the measures need to be validated and reliable. That is, it is important to select measures that have been statistically validated, show strong construct validity, have good sensitivity, and good reliability, and measure what they purport to measure. The psychometric properties of the measure are particularly important when self-report measures are used to show that change in the outcome measure is a real change, rather than merely variability related to the poor psychometric properties of the measure (Donovan et al., 2012).

It is also important to consider the mode of how outcome measures are obtained. In the AOD field, many of the outcome measures rely on self-report via psychometrically-validated questionnaires. Self-report measures have a number of advantages; they are easy to use, economical, non-invasive, and can provide information across a range of outcome domains. The limitation of self-report measures, however, is that they rely on a person accurately and/or truthfully reporting substance use or consequences of substance use. Research that has examined the accuracy of self-report in the AOD field indicates that people can be reliable and accurate reporters (Napper, Fisher, Johnson, & Wood, 2010; Zanis, McLellan, & Randall, 1994), although there is no guarantee that this is always the case (Johnson & Richter, 2004). To overcome concerns about whether self-report is accurate, many studies use biological measures (e.g., urine or blood tests to look for traces of substance use or metabolites of substance use) or use significant others to corroborate a person's report of substance use or consequences of substance use (see Donovan et al., 2012). Although biological measures can show unequivocally whether a substance has been used recently, they cannot account for use outside the short time window that a specific drug or its metabolites can be identified. Additionally,

biological measures can also be expensive and pragmatically, are difficult to obtain (e.g., gender-specific personnel are needed to monitor urine collection processes), and generally more intrusive.

AOD disorders are seen as chronic remitting disorders, with frequent, co-occurring relapse as part of the change process (McKay & Hiller-Sturmhofel, 2011). As such, to evaluate the effectiveness of a treatment programme, outcomes need to be measured across time, not just at the end of treatment. Once formal treatment has ended and the individual returns to his or her former environment, the individual has to contend with fluctuations in life stressors, and environmental and social contexts that may trigger substance use behaviour, and increase the risk of relapse (see Larimer, Palmer & Marlatt, 1999). To evaluate the effectiveness of a treatment programme, it is critical that assessment of outcome measures and change occurs at follow-up periods when the individual has returned to normal living patterns, contexts, and routines. Research typically evaluates outcomes across a number of follow-up periods (e.g., 3 months, 6 month, 1 year, 5 years; Brown et al., 2010; Project MATCH, 1993; McDonell et al., 2013).

3.1.2 Evaluation of The Salvation Army Bridge Programme

In 2012, the University of Otago research team, in consultation with Dr Greg Coyle (Principal Advisor, Salvation Army Social Programmes) and Captain Gerry Walker (at the time, the National Manager of The Salvation Army's Addiction & Supportive Accommodation Services), designed an evaluation to assess the effectiveness of the Bridge Programme at producing real-world change for its clients in relation to substance use. We were specifically interested in answering the following questions:

1. Does the Bridge Programme Model of Treatment reduce or stop harmful substance use by clients attending the programme?
2. Does the Bridge Programme Model of Treatment improve real-world functional outcomes for clients attending the programme (i.e., health, social and vocational functioning, quality of life, activity increase, and decrease in criminal offending)?
3. Does the Bridge Programme Model of Treatment alter changeable personal factors that are related to good treatment outcome (e.g., increased motivation for treatment, self-efficacy, internal locus of control)?
4. What role does spirituality, a key component of the Bridge Programme Model of Treatment, have in relation to treatment outcomes (i.e., reduction in harmful substance use, treatment completion or retention, functional outcomes)?

To answer these questions, we gathered data by administering a battery of standardised psychometric measures and questionnaires to clients of The Salvation Army's Bridge Programme. We used a mixed-methods approach, combining quantitative and qualitative data collection to evaluate the effectiveness of the Bridge Programme on a number of treatment outcome measures. Specifically, we used psychometrically-validated measures of self-report and significant others' report to examine substance use, consequential outcomes, and predictive or mediating factors that may relate to these outcomes. We examined change in outcome measures over three discrete time

points, from baseline (i.e., prior to Salvation Army treatment), to end of Salvation Army treatment, and then again at follow-up, 3 months after the end of treatment⁴.

⁴ A 3-month follow-up period was used as it fitted within the period of the evaluation.

3.2 Method

3.2.1 The needs of the research:

Because we wanted to measure change in outcome related to the Bridge Programme Model of Treatment, it was important that we took baseline measurements prior to any treatment being undertaken, regardless of how or when the client entered treatment.

For the fidelity of the research, we also needed the research procedure and data collection to be standardised across the seven participating Salvation Army Addiction Centres, irrespective of the variety of elements of the programme offered at each centre.

3.2.2 Methodological issues

To design an evaluation of a nationwide programme such as The Salvation Army Bridge Programme, first we needed to work through a number of methodological issues:

1. Each Salvation Army Addiction Centre nationwide delivers a variety of services. In some Centres, this includes initial intake, comprehensive assessment, social detox, and Stage 1 outpatient programmes delivered in preparation for the Stage 2 Bridge Programme of Treatment (an 8-week, intensive residential programme). In other Centres, clients are taken directly into Stage 2, with intake assessments being completed by an external agency. Table 3.1 outlines the process for each Centre. Based on this information, we realised that we needed to develop a research protocol that would be flexible enough to accommodate the differences in process between each Centre, while still remaining experimentally rigorous.
2. The process by which clients entered treatment at either Stage 1 or Stage 2 depends on client need and available services in their locality. For example, some clients enter treatment at Stage 1 with or without the need for social detox and then complete the Stage 2 intensive programme, others may enter treatment directly at the Stage 2 intensive phase.
3. The University of Otago research team were based in Dunedin but the research assistants employed by The Salvation Army to collect data were necessarily based at each of the participating Salvation Army Centres. As such, the researchers were unable to be on-site to supervise the day-to-day data collection process.
5. The evaluation was conducted in busy Salvation Army Centres, which could be large in terms of the number of staff employed and geographically large in terms of the catchment of clients (e.g., it included the catchment of rural clients who travelled to individual centres for treatment). As The Salvation Army Centres were focused on treatment, and the research assistants were not always present at a given centre, there were procedural difficulties that had to be overcome related to (1) informing staff at each Salvation Army Centre about the evaluation that was being conducted, and (2) staff at the centre relaying information about new clients entering or leaving the programme to the research assistant.

Table 3.1. The Process at Each Centre

<div> <div> Baseline <ul style="list-style-type: none"> • Information & Consent • Battery 1 • Significant other contacted </div> <div> End of Treatment <ul style="list-style-type: none"> • Battery 2 • Significant other contacted </div> <div> Follow-up <ul style="list-style-type: none"> • Battery 3 • Significant other contacted </div> </div>			
Centre	SA Assessment	SA Treatment	3-month follow-up
Auckland	Initial contact <i>and</i> SA Assessment appointment	Stage 1 Outpatient, part-time <i>and</i> Stage 2 full time residential or day clients	Stage 3 After care
Waikato – Residential Programme	Referral <i>and</i> Social Detox ¹	Stage 2 Intensive daily programme	
Waikato – Non-residential Programme	Referral <i>and</i> Assessment	Stage 1 Preparation for Stage 2 <i>and</i> Stage 2 Intensive day, brief intervention, weekly 1:1	Stage 3 Continuing care, weekly 1:1
Wellington – Pathway 1	Initial contact <i>and</i> SA Comprehensive Assessment	Stage 1 Pre-entry <i>and</i> Stage 2 9 week programme	Stage 3 Continuing care PPE completed at 3-months
Wellington – Pathway 2 Locals	Referral <i>and</i> SA assessment for programme	Stage 1 (in person) Pre-entry <i>and</i> Stage 2 Day or residential 9 week programme	PPE completed at 3-months
Wellington – Pathway 2 Out of Town	Referral <i>and</i> SA assessment for programme <i>and</i> Stage 1 (via phone)	Stage 2 Day or residential 9 week programme	Discharged back to referrer
Christchurch-Directly to Bridge	<ul style="list-style-type: none"> • Referral • Brief assessment • Comprehensive assessment 	<ul style="list-style-type: none"> • Pre-entry screen • Stage 2 orientation week • Stage 2 programme 	<ul style="list-style-type: none"> • Aftercare programme
Christchurch-From Central Coordination	<ul style="list-style-type: none"> • Referral • Comprehensive assessment • RAM interagency meeting - where client is approved for Stage 2 	<ul style="list-style-type: none"> • Pre-entry screen • Stage 2 orientation week • Stage 2 programme 	<ul style="list-style-type: none"> • Aftercare programme
Christchurch-From out of town	<ul style="list-style-type: none"> • Interagency meeting 	<ul style="list-style-type: none"> • Pre-entry screen • Stage 2 orientation week • Stage 2 programme 	<ul style="list-style-type: none"> • Aftercare programme
Dunedin	<ul style="list-style-type: none"> • Initial phone contact • Informal engagement • Social detox • Comprehensive assessment (completed by SA or external agent) 	<ul style="list-style-type: none"> • Stage 1, pre-entry (onsite in Dunedin or via case worker visits/ phone calls to rural communities) • Stage 2 – intensive programme 	<ul style="list-style-type: none"> • Aftercare

¹Waikato Residential – Consent and Battery 1 administered on last day of Social Detox.

3.2.3 Solutions to address research needs and methodological issues

We were very mindful of the importance of keeping all staff, not just Salvation Army AOD management, informed about the research. In particular, it was critical that staff at each participating Salvation Army Addiction Centre were fully informed to accommodate the research assistants in gathering data and ensuring that all clients who entered treatment during the period of the evaluation were given the opportunity to participate. It was also very important that case workers knew why and how the evaluation was being done.

To address both the needs of the research and the methodological issues mentioned above, the research team put in place several procedures so that the evaluation could be conducted in a meaningful way with the least disruption possible:

1. We established a standardised point for baseline (pre-treatment) measures to be completed for all participants across all of The Salvation Army Centres. This was to ensure that baseline measurements were obtained prior to any form of treatment being delivered as part of the Bridge Programme. The point at which baseline, end of treatment, and follow-up measures were collected at each Centre is shown in Table 3.1.
2. We operationalised the research procedures via a comprehensive Administrator's Manual. The manual gave detailed instructions on both the procedural requirements of the project and example scripts for how the research assistants could approach each step of the process. Research assistants were trained by the Otago research team at group training meetings held in Auckland and additional support was offered via individual training, phone, or email contact across the course of the evaluation. Procedural difficulties were discussed and problem solved during these interactions and during regular teleconferences. Any decisions about procedures were then manualised as additions to the Administrator's Manual. The research assistants were instructed to contact the University of Otago research team at any time with questions. The fidelity of the research data collection process was also monitored across the course of the evaluation.
3. We involved Jenny Boyle (at the time, the National Operations Manager for The Salvation Army's AOD Services) and the Directors at each of the participating Centres in group training sessions or through ongoing dialogue so that they could support the research assistant at their Centre to carry out the procedures and assist with managing any Centre-related procedural problems.
4. To keep staff informed, research assistants distributed a letter to Salvation Army Bridge Programme staff outlining the background to the evaluation, why it was being done, and how. We also delivered presentations to staff at Salvation Army Centres in Auckland Central and Dunedin on the aims of the evaluation and the procedures that would be used.

3.2.4 Measures

To select the measures to use in the evaluation of the Bridge Programme, we conducted an extensive review of the literature. Based on that review, we selected a battery of measures that together would provide a broad overview of clients' current alcohol and drug use, and other

important outcome domains considered relevant to the aim of evaluating the Bridge Programme (e.g., health and well-being, vocational functioning, and spirituality).

We also developed a simplified conceptual model of the treatment process to ensure that the measures we selected covered all aspects of the treatment process (see Finney, 2003). The model outlined in Figure 3.1 depicts the major domains involved in the treatment process. Characteristics of the client, the treatment provider (The Salvation Army), and the treatment programme (the Bridge Programme) as well as the therapeutic alliance between client and therapist, all contribute to the primary and secondary treatment outcomes.

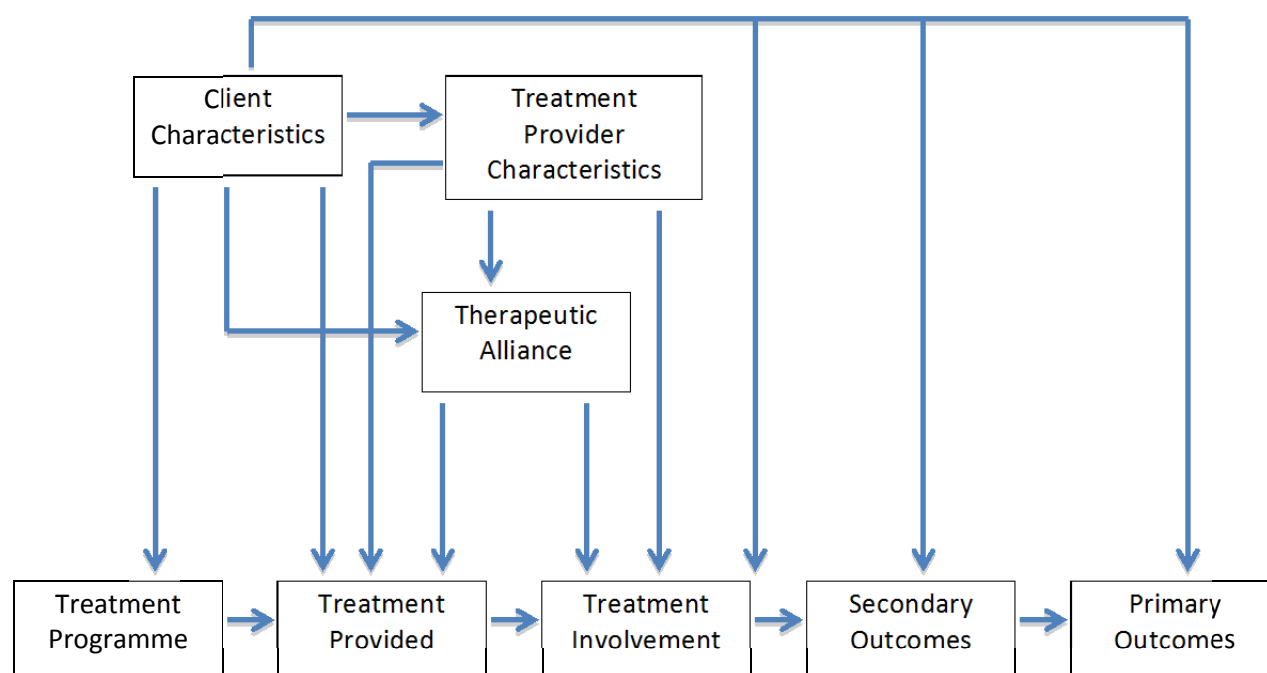


Figure 3.1. An outline of the domains involved in the treatment process.

All of the outcome measures we selected were psychometrically validated. Table 3.2 provides an overview of the assessment domains and measures used.

Table 3.2. Assessment domains and measures used

Assessment Domain	Measure
Demographic information:	–Self-report
Identification of psychiatric status	–Online version of Addiction Severity Index (ASI-MV)- Psychiatric Status sub-score –Patient Health Questionnaire (PHQ)
Identification of problematic substance use:	–Alcohol Use Disorders Identification Test (AUDIT) –Drug Abuse Screening Test (DAST)
Treatment goal:	–Self-report to single question, “During your time at the Bridge Programme, what is your goal regarding your alcohol and/or drug use?”

Assessment Domain	Measure
Substance use:	–ADOM Part A – questions regarding the type and frequency of alcohol and other drug use
Severity of use:	–Online version of Addiction Severity Index (ASI-MV) - composite (recent) score for alcohol and drug
Consequences of use:	–Drinker Inventory of Consequences –recent (DrInC) –Inventory of Drug Use Consequences – recent (InDUCdrug)
Social functioning:	–Online version of Addiction Severity Index (ASI-MV) - Family/Social status composite (recent) sub-score –Drinker Inventory of Consequences –recent (DrInC) - Interpersonal consequences sub-score –Inventory of Drug Use Consequences – recent (InDUCdrug) - Interpersonal consequences sub-score
Physical health:	–Online version of Addiction Severity Index (ASI-MV) - Medical status composite (recent) sub-score –World Health Organisation Quality of Life (WHO QoL) - Physical Health sub-score
Mental health:	–Online version of Addiction Severity Index (ASI-MV)- Psychiatric Status (recent) sub-score
Perceived quality of life:	–World Health Organisation Quality of Life Assessment (WHOQoL-BREF) - Question 1 – Life
Vocational functioning:	–Online version of Addiction Severity Index (ASI-MV) - Employment status sub-score –Important People and Activities –‘ Work for pay’ and ‘work not for pay’ hours per week ⁵
Criminality:	–Drinker Inventory of Consequences –recent (DrInC) – Questions 41 & 42 –Inventory of Drug Use Consequences – recent (InDUCdrug) – Questions 41 & 42
Activity:	–Important People and Activities - Non work related hours per week ⁵
Self-efficacy:	–Alcohol Abstinence Self-Efficacy Scale (AASES) –Drug Abstinence Self-Efficacy Scale (DASES)
Locus of control:	–Drinking Related Internal-External Locus of Control Scale (DRIE)

⁵ The Important People and Activities questionnaire was poorly completed so the data obtained from this measure was not included in the analysis.

Assessment Domain	Measure
	– Drug Related Locus of Control (DR-LOC)
Motivation:	– Readiness to Change Questionnaire – treatment version (RTCQ-TV) – Readiness to Change Questionnaire – treatment version, adapted for drug use (RTCQ-TVdrug)
Spirituality:	– Open-Ended questions – World Health Organisation Quality of Life – Spirituality (WHOQoL-SRPB)
Therapeutic rapport:	– Working Alliance Inventory (WAI) Client and Therapist
Corroboration of information from significant other:	– Drinker Inventory of Consequences, recent – significant other

A brief outline of each measure is provided here:

Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT was developed by the World Health Organization to screen and identify people who are at risk of developing alcohol problems. It is a 10-item self-report measure; respondents rate their level of agreement with items such as “How often do you have a drink containing alcohol?” on a scale from 0 to 4, according to frequency of occurrence. A total score of more than eight (for men) and 7 (for women) indicates a strong likelihood of hazardous or harmful alcohol consumption (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001).

Drug Abuse Screening Test (DAST)

The DAST is a 28-item self-report questionnaire for assessing involvement with drugs and was designed for clinical screening and treatment evaluation research. Respondents answer Yes or No to questions such as “Have you ever used drugs other than those required for medical reasons?” A total score of more than 11 indicates a substance abuse problem.

Alcohol and Drug Outcome Measure, version 2 (ADOMv2)

The ADOM is a brief outcome measure relevant to New Zealand alcohol and other drug (AOD) services. It consists of 18 questions for assessing substance use, functional outcomes such as lifestyle and wellbeing, and satisfaction with treatment progress and recovery. Service users and providers were involved in its development including a group of Māori and Pacific service users. The ADOM can be used in a range of AOD treatment services and focuses on a range of substances. The questionnaire is designed for service users and clinicians to complete together (Te Pou, 2013).

Addiction Severity Index – MV version (ASI-MV)

The ASI-MV is a computerised self-report version of the Addiction Severity Index (ASI) (McLellan, et al., 1992). Composite (recent) scores and severity (life time) ratings of the ASI-MV program are

generated using the same mathematical formula for each of the seven (medical, employment, alcohol use, drug use, legal, family/social, psychiatric) domains of the ASI.

Drinker Inventory of Consequences – Recent version (DrInC - recent)

The DrInC is a 50-item self-report questionnaire designed to measure adverse consequences of alcohol abuse in five areas (interpersonal, physical, social, impulsive, and intrapersonal) (Miller, Tonigan, & Longabaugh, 1995). The recent version of the measure asks about a specific 'think-back' period rather than lifetime occurrences. An alternative form, **The Inventory of Drug Use Consequences**, is used to measure adverse consequences of drug abuse and the **Drinker Inventory of Consequences - SO** is used to collect collaborative information from a significant other.

Alcohol Abstinence Self-Efficacy Scale (AASES)

The AASE is designed to evaluate an individual's efficacy (e.g., confidence) to abstain from drinking in 20 situations that represent typical drinking cues. Both efficacy and temptation are rated on 5-point Likert scales ranging from 1 = Not at all to 5 = Extremely. Individuals are asked to give a current estimate of temptation and efficacy. These scales can be used to evaluate individuals entering treatment, progress during treatment, relapse potential, and post-treatment functioning (DiClemente, Carbonari, Montgomery & Hughes, 1994). The AASES can be adapted to the **Drug Abstinence Self-Efficacy Scale (DASES)** for drug use (Miller, Broome, Knight, & Simpson, 2000).

Readiness to Change Questionnaire, treatment version (RTCQ, TV)

The RTCQ, TV is a 12-item self-report questionnaire designed to measure the stage of change reached by an individual who is seeking treatment with the aim of abstinence. It complements the original version which is intended for non-treatment seekers and is based on the stages of change model developed by Prochaska and DiClemente (1986) which describes the stages through which a person moves in an attempt to resolve an addictive problem (from pre-contemplation through contemplation to action). The RTCQ is administered for every substance that the individual reports using as readiness to change may vary by type of substance (Heather & Rollnick, 2000; Heather, Rollnick, & Bell, 1993; Rollnick, Heather, Gold, & Hall, 1992).

Drinking Related Internal-External Locus of Control Scale (DRIE)

The DRIE is a 25-item forced-choice measure adapted from the conceptual model and assessment method developed by Rotter (1966) to define an individual's beliefs about the extent to which the outcome of important life events are under personal control (internal locus of control) or under the influence of chance, fate, or powerful others (external locus of control). Each item on the DRIE is a pair of statements (e.g., A. *"One of the major reasons why people drink is because they cannot handle their problems."* B. *"People drink because circumstances force them to."*). Respondents are required to pick the statement that they believe to be more true. Alcohol-dependent individuals have been found to be more external in their drinking-related locus of control than non-dependent drinkers. The DRIE can be used as a predictor of treatment compliance and outcome. The scale has also been adapted to assess substance-specific control orientation of cocaine abusers and cigarette smokers (Donovan & O'Leary, 1978; Kenson & Janda, 1972).

Drug Related Locus of Control (DR-LOC)

The DR-LOC scale (Hall, 2001) is a 15-item, forced choice measure of drug-use control in a variety of drug-use-related situations. In a similar fashion to the DRIE, it was adapted from the model of internal – external control developed by Rotter (1966) and follows a similar format – for each item, respondents pick which of a pair of statements is most true for them.

Important People and Activities (IPA)

The Important People and Activities (IPA) data collection instrument was designed for the purpose of gathering information pertaining to an alcohol abuser's social support system. The IPA assesses an individual along three dimensions (i) establishing his or her social network, (ii) determining who the most important people are in that network, and (iii) determining what important activities the individual spends time doing (Clifford & Longabaugh, 1991).

Patient Health Questionnaire (PHQ)

The Patient Health Questionnaire (PHQ) can be used to establish provisional diagnoses for selected DSM-IV disorders. It consists of five modules covering five common types of mental disorders: depression, anxiety, somatoform, alcohol, and eating. It can be used for selected (but provisional) DSM-IV diagnoses for all types of disorders except somatoform. The PHQ was developed alongside the Primary Care Evaluation of Mental Disorders (PRIME-MD) that was developed and validated in the early 1990s to efficiently diagnose five of the most common types of mental disorders presenting in medical populations (Spitzer, Kroenke, Williams, & Patient Health Questionnaire Primary Care Study Group, 1999).

World Health Organisation Quality of Life -BREF and SRPB

The World Health Organization Quality of Life (WHOQOL) project developed a set of quality of life assessment measures that assess the individual's perceptions in the context of his or her culture and value systems, and personal goals, standards, and concerns. The WHOQOL instruments were developed collaboratively in a number of centres worldwide, and have been widely field-tested.

The WHOQOL-BREF instrument comprises 26 items, which measure the following broad domains: physical health, psychological health, social relationships, and environment. The WHOQOL-BREF is a shorter version of the original instrument that is more convenient for use in large research studies or clinical trials (Skevington, Lotfy, & O'Connell, 2004).

The WHOQOL-SRPB is an additional 32-item instrument has been developed to assess aspects of quality of life covering spirituality, religiousness, and personal beliefs (WHOQOL SRPB Group, 2002).

Working Alliance Inventory (WAI)

The Working Alliance Inventory (WAI) was developed as a measure of the alliance and relationship between therapist and client. The relationship is measured on 3 subscales – goal, bond, and task (Horvath, 1981; Horvath, & Greenberg, 1989).

Notes about the measures:

1. The measures were given in a specific order so that we could assess factors such as motivation and self-efficacy first, before the process of thinking and answering questions about substance use potentially altered participants' responses on these factors. The measures varied slightly in wording depending on when they were to be given.
2. Some of the measures at baseline required patients to 'think-back' over their lifetime (ASI), over the past 12 months (AUDIT, DAST), over the past 6 months (IPA), over the past 3 months (DrInC, InDUC), over the past 4 weeks (ASI, ADOM, PHQ, WHOQoL-BREF), or over the past 2 weeks (WHOQoL-SRPB) while others required participants to think about their current situation (RTCQ, AASES, DASES, DRIE, DR-LOC). At the end of treatment and at the 3-month follow-up, 'think-back' periods of greater than 4 weeks were altered to the 'last 4 weeks' so as to avoid overlap with the period of time covered by any previous measures (either at baseline or at end of treatment).
3. All of the measures with the exception of the ASI-MV were completed using pen and paper. The ASI-MV was available for participants to complete online; however, in some circumstances, computers were not available so a paper version of the ASI-MV was made available for participants to complete.
4. The ASI-MV was developed for a predominately USA market and therefore some questions were not relevant to a New Zealand population. Conversion tables (to a NZ context) were provided to aid participants with the answering of questions relating to education status, social welfare status, and the naming of some drugs (see Appendix 3.1).
5. The Important People and Activities measure was modified to include wording to include that related to the use of drugs other than alcohol.
6. Two of the measures relating to drug use (Readiness to Change Questionnaire and the Drug Abstinence Self-Efficacy Scale) required the participant to specify the type of drug being used and required the individual questionnaire to be filled out in relation to each drug used. During analysis, the drug specified by the participant was classified into one of nine categories of drugs (see Appendix 3.2).
7. A shortened battery of measures was provided at end of treatment or follow-up for participants who only completed a limited period of treatment, or who completed the measures over the phone, or who did not wish to go through the full battery assessment. For these participants, in the first instance, the ASI was omitted from the battery of measures. If the remaining measures were still deemed to be too onerous for completion, participants were only asked to complete the readiness to change measure, the ADOM, and the open-ended questions for participants; the remaining measures from the full battery were omitted.

3.2.5 Ethical Approval

We applied for and received ethical approval for the procedures that we used in the evaluation from the University of Otago Human Ethics Committee (Approval No: D13/058) and from the Lower South Regional Ethics Committee (Ethics Ref: LRS/12/EXP/022).

3.2.6 Participants

Between December 2013 and October 2014⁶, 478⁷ clients seeking drug and alcohol recovery treatment through Salvation Army Bridge Programmes at seven Salvation Army Centres nationwide (Auckland, Manukau, and Waitakere Addiction Services in Auckland, Waikato Addiction Services, Wellington Addiction Services, Christchurch Addiction Services, and Dunedin Addiction Services) were approached by a Salvation Army-employed Research Assistant to participate in the University of Otago evaluation. Those approached made up 74%⁸ of the total number of clients entering The Salvation Army for treatment during the evaluation period. Recruitment of new participants for the evaluation ended in October 2014 to allow time to follow-up these participants which continued until early May 2015. The seven treatment centres were chosen by the National Manager of The Salvation Army's Addiction and Supportive Accommodation Services and the National Operations Manager of Bridge/AOD because these seven centres were reported to deliver the Bridge Model of Treatment in essence; the centres were also seen as representative of the range of clients that the Bridge Programme delivers treatment to (e.g., persons living in larger and smaller city centres, including rural clients within the catchment area of these centres).

A number of clients (26%⁹) entering the programme were not invited to participate in the evaluation. The reasons given for clients not being invited to participate included:

- The client being ineligible for the study due to being a previous Bridge Programme client within the previous 3 months;
- A failed drug test therefore not progressing with the Bridge Programme;
- The research assistant not being informed of the client entering the Bridge Programme;
- The Christmas period break or intake when the research assistant was on leave or there being no research assistant employed for a period;
- The client being fast-tracked through the intake procedure and being missed by the research assistant for invitation to take part in the study;
- The client not attending the arranged Information and Consent meeting.

⁶With the exception of Dunedin who started recruiting participants earlier in November 2013 and Christchurch who started recruiting participants in late April 2014 due to difficulties related to the devastating earthquakes.

⁷ This number does not include data from one Centre as this was not returned to the research team in time for data analysis.

⁸ This is based on data returned from 6 of the 7 Centres.

⁹ This is based on data returned from 6 of the 7 Centres.

In total, 382 Salvation Army clients consented to participate in the evaluation (see Appendix 3.3 for recruitment numbers). Participants were between 20 and 73 years old; 250 (65%) were male and 131 (34%) were female (plus 1 unknown gender). Only clients who gave written consent to take part in the evaluation were asked to complete the measures at each time point.

In addition, a total of 142 persons took part in the evaluation as “significant others” who could report corroborative information on the participant’s substance use. These significant others were nominated by the participant at the time that the participant completed measures for the evaluation. Significant others were recruited via mail or in person with an invitation to take part in the evaluation and were included if they gave written consent to participate. Significant others included parents (31%), spouse or partners (28%), siblings (16%), former partners (8%), children (6%), counsellors, case workers, or social workers (6%), and sponsors and other family members (e.g., grandparents, cousins) (5%).

3.2.7 Procedure

Where possible, all clients who entered one of the seven participating Salvation Army Centres during the evaluation recruitment period were invited to participate in the evaluation. Clients were encouraged to participate and informed that it was their choice to participate and that non-participation would not in any way affect the treatment they received on the Bridge Programme.

Clients were contacted by the research assistant and invited to attend a meeting where the evaluation was outlined and any questions answered. Clients who wished to participate were asked to sign a Consent Form.

All participants who agreed to participate were allocated a study identifier number that was used to identify all completed measures. Confidentiality of participants’ answers was ensured at all times.

A full set of measures were completed by participants at three specific time points, (1) Baseline (before beginning any treatment as delivered at each individual Centre), (2) at End of treatment (at graduation or on leaving the treatment programme), and (3) at a 3-month Follow-up.

Where possible, the measures were completed at a Salvation Army premises and may have been administered to the participant either on an individual basis or in a group setting, depending on the number of clients entering the programme and completing the measures at any given time. The research assistant supervised each session. In some situations, the research assistant provided support with reading and writing.

Participants were encouraged to answer truthfully and reassured that their individual answers to the questionnaires would not be shared with their Case Worker or other Salvation Army staff. If the research assistant became concerned about the participant’s safety or the safety of others, a ‘Duty of Care’ procedure was in place at each Centre whereby the research assistant had a Salvation Army staff member to contact to discuss concerns. The participant was informed and included in these discussions.

The completion of the measures was a time-consuming task (e.g., 2- 4 hours) and participants were supplied with refreshments and encouraged to take breaks if needed. In some situations (i.e., at end of treatment and at follow up), participants were unable to attend a Salvation Army Centre to

complete the measures. In these situations, the research assistant either (1) completed a selection of measures over the phone with the participant or (2) posted the measures to the participant for him or her to complete and return.

At each time point, brief information was also collected from Salvation Army staff. This included information regarding the client's referral, comprehensive assessment, and dates of treatment.

At each time point, participants were asked to nominate a significant other that they knew well who could answer questions relating to the participant's substance use. Where participants nominated a significant other, the research assistant posted study information, a consent form, and a set of measures to him or her. The significant other was asked to return the completed forms directly to the research team at the University of Otago. If, at subsequent time points, the participant wished to change the person contacted, an additional Consent Form was sent to the new significant other.

(i) Baseline measures

After informed consent was completed, the research assistant organised a time to meet with the participant to have them complete the first set of measures. The completion of the first set of measures was timed to occur after the client had completed the Comprehensive Assessment process (in some cases, the comprehensive assessment process had been completed before the client began with The Salvation Army's Addiction Services) and before any treatment had begun. As already mentioned, this varied from Centre to Centre (see Table 3.1). In addition to the standard set of measures, the measures completed at baseline included demographic questions, a number of questions relating to any previous treatments for their substance use, and their goal for treatment.

(ii) End of treatment measures

Participants completed the standard set of measures (i.e., the same battery that was completed at baseline) with the addition of the Working Alliance Inventory, which was completed independently by both the participant and relevant Case Worker. Open-ended questions for the participant to answer were also included and asked the participant for feedback about the treatment programme, and their spiritual beliefs, feelings, and experiences. Questions for The Salvation Army staff included brief information about the participant's aftercare. End of treatment measures were completed as close to the participant's graduation day as possible. For those who either withdrew or were asked to leave before completing the programme, end of treatment measures were completed as close to the last day of treatment as possible.

(iii) Follow-up measures

Three months after graduating or leaving the Bridge Programme, participants completed the standard set of measures (i.e., the same battery that was completed at baseline). Open-ended questions for the participant to answer were also included to obtain information from the participant about what they had been doing since leaving the treatment programme, whether they had attended Salvation Army aftercare programmes, and to gather feedback about the Bridge Programme. Questions for The Salvation Army staff included information about the participant's attendance at Salvation Army-provided aftercare programmes. To encourage participants to participate in the follow-up, vouchers and certificates were provided to them to compensate them for their time.

3.2.8 Data Analysis

All completed measures were returned to the University of Otago research team. Participants' answers to the open-ended questions were coded and all psychometric measures were scored according to standard procedure and entered into a database. Research assistants at each Centre went to a great deal of effort to locate participants and have participants complete the measures at each time point, particularly at follow-up.

(i) Delay between completing measures at Baseline, End of Treatment, and Follow-up

The delay between each data collection point varied from participant to participant due to the following:

- (i) Some participants spent more than the standard 8 weeks in treatment; either by taking a break and re-joining treatment, or by requiring extra time before being ready for graduation;
- (ii) Some participants did not complete the full treatment (for a full breakdown of reasons, see Appendix 3.4);
- (iii) Difficulties attaining a consistent 3-month delay for follow-up; the timing of this data collection point often needed to be worked around the participant's work/life commitments. The mean number of days spent in Stage 2 treatment was 56.28 (8 weeks) and the mean days between ending treatment (either graduation or leaving the programme) and follow-up was 121.68 (4 months) (see Table 3.3). Note that some Centres did not offer a Stage 1 treatment programme.

Table 3.3. Mean number of days (SD) spent in Treatment Stages 1 and 2 and the delay in days to follow-up

	Days spent in Stage 1 treatment (N= 263)	Days spend in Stage 2 treatment (N = 261)	Days between end of treatment & follow-up (N = 146)
Mean (sd)	30.17 (28.59)	56.28 (28.26)	121.68 (58.49)
Range	1 – 204	1 - 184	34 - 408
N/A – did not enter this stage of treatment or follow-up	58	54	--
missing	4	10	179

3.3 Results

3.3.1 Characteristics of population at baseline

Included in the data analysis were 325 participants aged between 20 and 72.8 years (mean age = 39.6; 64% male, 35% female). The majority of the population identified themselves as NZ European (66%) or Māori (31%). Ten percent of the population identified Pacific Island ancestry (Samoan, 4%; Cook Island Māori, 3%; Tongan, 1.5%; and Niuean, 1%), and the rest of the population identified Indian (1.5%), Chinese (<1%), or Another (7%) ethnicity. Participants could identify more than one ethnic group.

We assessed participants' psychiatric status at baseline using the ASI psychiatric composite (recent) and lifetime scores, and the PHQ criteria for depressive, panic, and anxiety disorders.

- Participants scored a mean of 0.31 on the ASI recent (past 30 days) psychiatric measure (a score of 0 indicates no problem and a score of 1 indicates an extreme problem). Using the lifetime ASI measures of psychiatric status, participants scored a mean of 3.64 (0 indicates no problem and 9 indicates extreme problem).
- Using the PHQ, 23.6% of participants met criteria for 'major depressive syndrome', 14.2% met criteria for 'other depressive syndrome', 21.8% met criteria for 'panic syndrome', and 16% met criteria for 'other anxiety syndrome'.

As standard protocol, all Salvation Army clients undergo an initial comprehensive assessment administered by a clinician at each Salvation Army Centre. Clinicians used this assessment to identify the substance for which clients were seeking treatment. Based on this Salvation Army initial comprehensive assessment, 138 (42.5%) participants were identified as users of alcohol only, 66 (20.3%) as users of alcohol and a single drug, 58 (17.8%) as users of alcohol and multiple drugs, 41 (12.6%) as users of a single drug only, and 19 (5.8%) as users of multiple drugs (but no alcohol).

We assessed participants' drug and alcohol use at baseline using the AUDIT and DAST respectively:

- Participants who used alcohol (i.e., of alcohol only, alcohol and single drug, or alcohol and multiple drugs) scored a mean of 25.47 on the AUDIT. A score over 20 is a clear indication that a referral to specialist evaluation and treatment is required (Barbor et al. 2001).
- Participants who used drugs (i.e., of a single drug only, multiple drugs only, alcohol and single drug, or multiple drugs) scored a mean of 15.24 on the DAST. A score over 6 (out of a possible 28) is a clear indication that specialist evaluation is required and a high need for specialist treatment (Skinner, 1982).

When asked what their goal was regarding their alcohol and/or drug use, the vast majority of participants who answered this question stated that it was abstinence (82%); only 8% stated that their goal was to reduce their use of substance(s) of concern¹⁰.

3.3.2 Completion of the treatment programme

Of the 325 participants who were initially included in the study population, 182 (56%) completed treatment and graduated from the Bridge Programme, and 43 (12.2%) did not graduate from the programme but did complete a substantial portion (more than 28 days) of the 8-week Stage 2

¹⁰ 10% of participants did not answer this question.

programme (see Appendix 3.4, for the full breakdown of participants by treatment length). That is, in total, 225 (69%) participants completed enough treatment to be considered as having received a therapeutic dose of Bridge Programme treatment¹¹.

Conversely, 100 (31%) study participants did not complete sufficient treatment to be considered as having received a dose of treatment (i.e., they experienced less than half of the Bridge Programme treatment, ranging from 1 session to less than 28 days of treatment) (see Appendix 3.5). Of those who did not complete a dose of treatment, half chose to withdraw from the programme¹², a further 20% were asked to leave the programme for various reasons including being found using drugs or alcohol on site or for inappropriate behaviour, 5% were transferred to an alternative care provider, and 15% had an alternative reason for leaving the programme (see Appendix 3.6).

Of the 225 participants who completed baseline measures, 171 (76%) participants also completed measures at the end of treatment, and 108 (48%) completed measures at the 3-month follow-up.

Therapeutic Alliance: For those who completed treatment, we measured the therapeutic alliance (i.e., via the WAI) between the participant and his or her case worker. The WAI was completed independently by both the individuals. Each of the three subscales (task, bond, & goal) were scored on a 4-28 scale; the higher the score, the more positive the relationship. Respondants can receive a total WAI score of between 16 and 84. As shown in Table 3.4, overall, all participants reported good therapeutic alliance at end of treatment (top quartile).

Table 3.4. Mean scores (SD) on each of the three subscales of the WAI and the total WAI score for participants and their case workers.

	Task Mean (sd)	Bond Mean (sd)	Goal Mean (sd)	TOTAL Mean (sd)
Participant (completed by N = 149)	22.86 (4.27)	22.26 (4.54)	22.02 (4.37)	67.14 (12.19)
Case Worker (completed by N = 150)	22.41 (3.33)	23.02 (3.13)	21.35 (3.47)	66.78 (8.88)

Aftercare: For those who completed treatment (and for whom data regarding care after treatment was returned for analysis), 57.7% continued with Stage 3 aftercare provided by The Salvation Army, 21.5% continued with other (i.e., not Stage 3) Salvation Army-provided care after treatment, and 31% continued with aftercare provided by an organisation other than The Salvation Army. These other organisations included: NA, AA, 12 Step meetings community support group, CADS, Phoenix Centre, He Waka Tapu, Care NZ, Odyssey House, Wings Trust, and Women's Homeless Trust.

¹¹ The research team made a decision that the participants had to have received at least half of the Bridge Programme treatment to be considered as having had a dose of Bridge Programme treatment.

¹² Because we did not ask participants specifically why they chose to leave the programme, we cannot comment on the reasons why this may have occurred. However, several participants indicated that it was for personal reasons such as their wife having a baby or that they were moving away from the area.

3.3.3 Analysis of Research Questions

To describe the characteristics of the participants in the Bridge Programme in relation to outcomes at each of the 3 time points (baseline, end of treatment, follow-up), we used summary statistics (means, standard deviations). Note that these statistics represent unadjusted outcome measurement data.

To make inferences about the effectiveness of the Bridge Programme, we used a number of analysis strategies:

- For days of use and for criminality, we used confidence intervals to compare participants' mean days of use between the 3 time points and to compare participants' interaction with the law between those 3 time points.
- We used correlations to assess the extent to which participants' scores on the consequences of use measures (DRinC and InDUC) were corroborated by their significant others.
- We used paired t-tests to compare participants' scores between the 3 time points on the measures of changeable personal factors (i.e., self-efficacy, and locus of control) and on the measure of recovery.
- For all remaining outcome measurements, we used linear mixed models¹³ to analyse the data. Inferences from the models primarily relate to how the outcome (e.g., severity of use, spirituality) was affected by the phase of the treatment. That is, did the outcome change at baseline, end of treatment, or follow-up? The effects were adjusted for sex, age, length of treatment, and reason for referral. For detailed descriptions of each model, see Appendix 3.7).

The following summary statistics and analyses reported are conducted on participants who completed enough treatment to be considered as having received a dose of Bridge Programme treatment (n = 225). Preliminary analyses indicated that there was no differences between any of the Centres on any measure, so we do not report the results of any of the analyses separately by Centre.

¹³ Brown, H., & Prescott, R. (2006). *Applied mixed models in medicine: Second edition*: Wiley.

3.3.4 Primary outcomes

Reduction of harmful substance use:

To answer the question, does the Bridge Programme Model of Treatment reduce or stop harmful substance use, we examined participants' days of substance use as well as the severity of that use.

1. Did the Bridge Programme Model of Treatment decrease DAYS OF USE of Alcohol or Drugs over the study period?

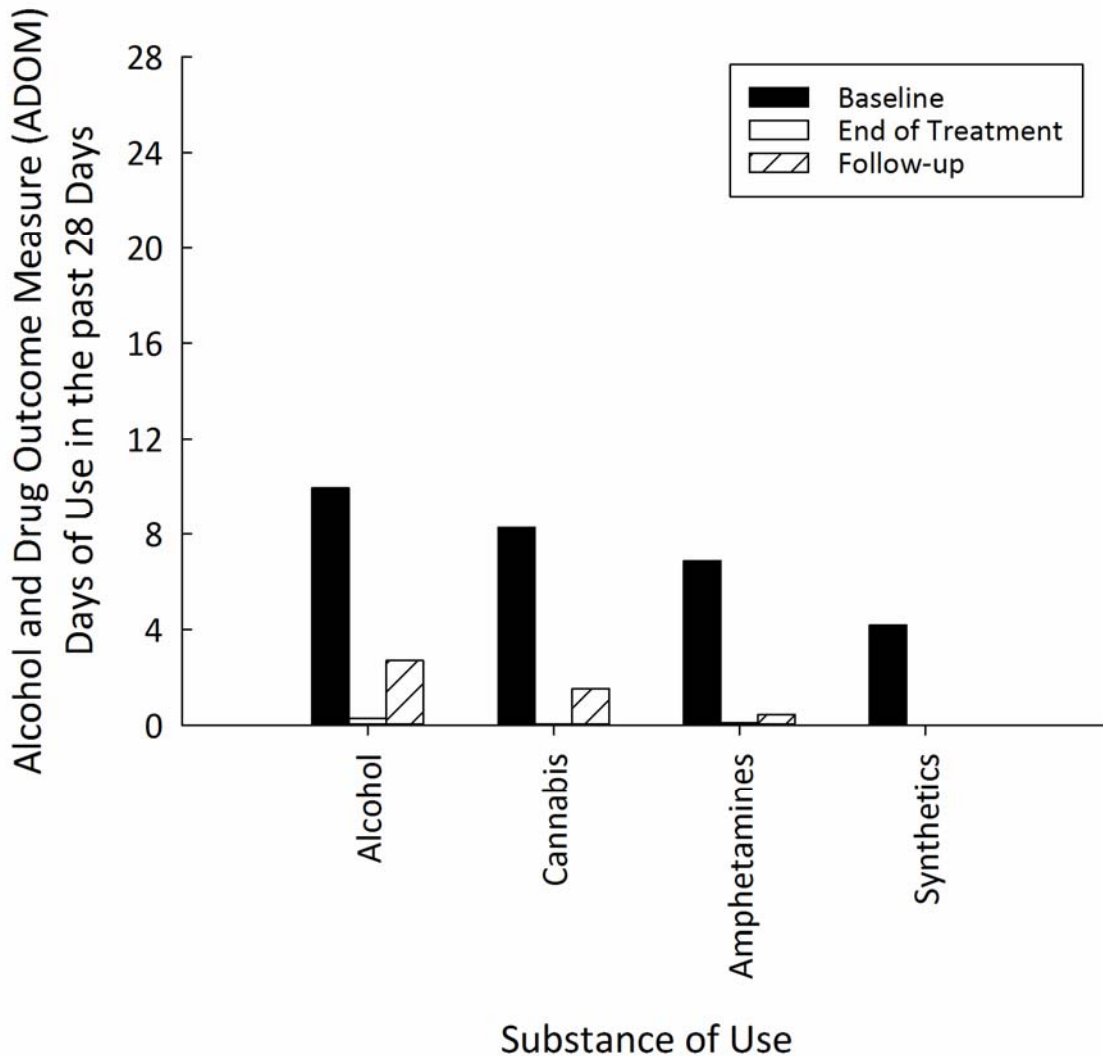


Figure 1.1. Mean DAYS OF USE for Alcohol, Cannabis, and Amphetamines at each time point.

Figure 1.1 shows the raw data for DAYS OF USE. As mentioned above, we calculated confidence intervals to compare mean days of use between the 3 time periods (see Appendix 3.8).

Days of Alcohol Use (in the past 28)

There was a significant decrease in days of alcohol use (in the past 28 days) at end of treatment compared to baseline (from a mean of 9.95 days to 0.28 days), but a significant increase in days used from end of treatment to follow-up (from a mean of 0.28 days to 2.70 days). The use of alcohol at

the 3-month follow-up, however, was still significantly less than that at baseline (2.70 days versus 9.95 days).

Days of Drug Use (in the past 28)¹⁴

Cannabis

There was a significant decrease in days of cannabis use (in the past 28 days) at end of treatment compared to baseline (from a mean of 8.27 days to 0.05 days), which was maintained at follow-up (1.51 days).

Amphetamines

There was a significant decrease in days of amphetamine use (in the past 28 days) at end of treatment compared to baseline (from a mean of 6.88 days to 0.11 days), which was maintained at follow-up (0.44 days).

Synthetics

There was a significant decrease in the days of synthetics use (in the past 28 days) at end of treatment compared to baseline (from a mean of 4.18 days to 0 days), which was maintained at follow-up (0 days).

¹⁴ Information was collected for nine separate categories of drugs (see Appendix 3.2). Cannabis, amphetamines and synthetics were the three most frequently-used drug types. Very few participants were identified as users of the remaining 6 categories of drugs therefore insufficient data were available for analysis.

2. Did the Bridge Programme Model of Treatment reduce SEVERITY of Alcohol use or Drug use over the study period?

Table 3.5 shows the raw means for participants' scores on the SEVERITY of alcohol use and SEVERITY of drug use measure (ASI) broken down by participants' use classification at intake (e.g., alcohol use only, single drug use only, etc.).

Table 3.5. Mean scores (SD) for severity of alcohol and drug use at baseline, end of treatment, and follow-up for each use classification.

	Baseline	End of Treatment	Follow-up
Severity of alcohol use: ASI alcohol composite (recent) score:			
<i>Users of only alcohol</i>	0.51 (0.27) (n = 103)	0.16 (0.12) (n = 67)	0.15 (0.19) (n = 35)
<i>Users of alcohol & single drug</i>	0.40 (0.25) (n = 35)	0.11 (0.09) (n = 28)	0.16 (0.16) (n = 16)
<i>Users of alcohol and multiple drugs</i>	0.27 (0.25) (n = 33)	0.11 (0.11) (n = 23)	0.12 (0.12) (n = 14)
Severity of drug use: ASI drug composite (recent) score:			
<i>Users of single drug only (no alcohol)</i>	0.19 (0.10) (n = 26)	0.05 (0.04) (n = 20)	0.05 (0.06) (n = 12)
<i>Users of multiple drugs (no alcohol)</i>	0.23 (0.11) (n = 10)	0.11 (0.17) (n = 3)	0.09 (0.08) (n = 3)
<i>Users of single drug & alcohol</i>	0.13 (0.11) (n = 35)	0.04 (0.04) (n = 27)	0.03 (0.03) (n = 15)
<i>Users of multiple drugs & alcohol</i>	0.20 (0.10) (n = 33)	0.07 (0.05) (n = 22)	0.04 (0.03) (n = 14)

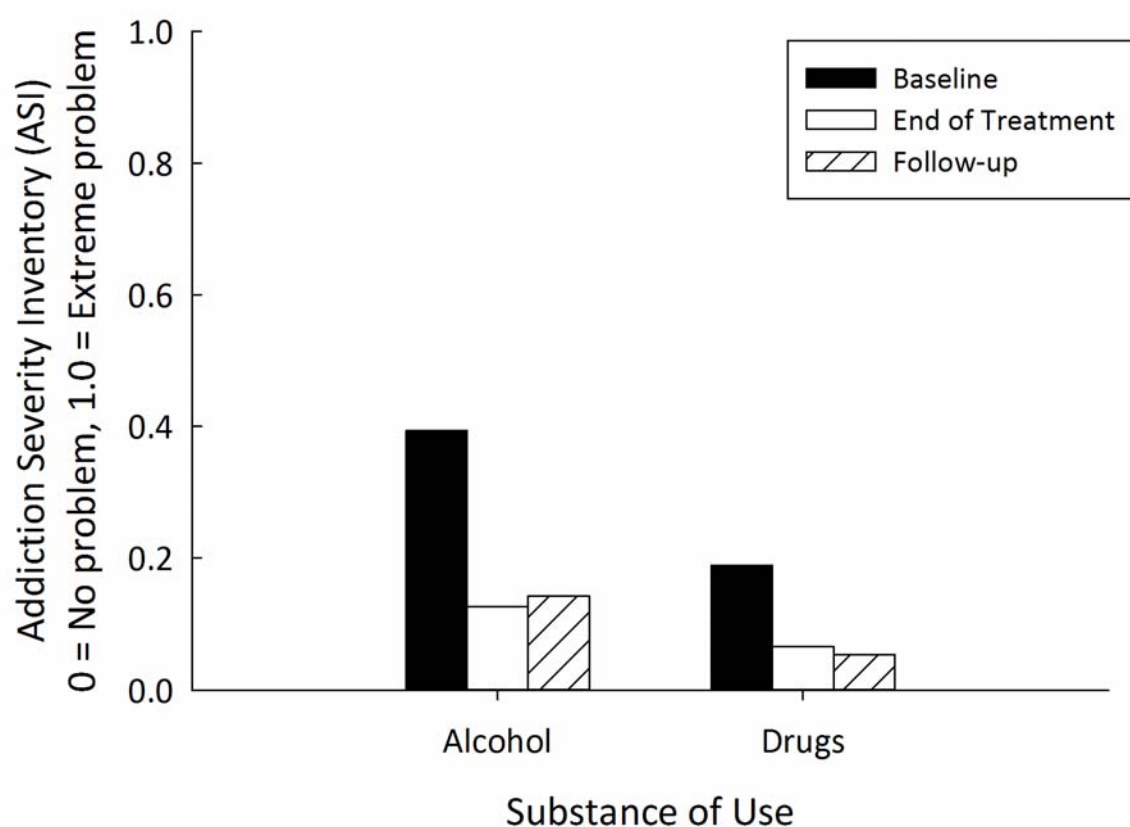


Figure 3.2. Mean SEVERITY of alcohol use and drug use at baseline, end of treatment and follow-up. The data are shown collapsed across use classification.

Figure 3.2 shows the raw means for participants' scores for SEVERITY of alcohol use and drug use, collapsed across the use classifications. Statistical modelling established that the severity of participants' alcohol or drug use significantly reduced at end of treatment, and was maintained at follow-up (i.e., no significant change in severity from end of treatment to follow-up).

3.3.5 Secondary outcomes

Improvement of consequential (i.e., functional) outcomes:

To answer the question, does the Bridge Programme Model of Treatment improve consequential outcomes, we examined health (i.e., physical and mental), social functioning, quality of life, employment status, adverse consequences of substance use, and criminality.

3. Does the Bridge Programme Model of Treatment improve real-world functional outcomes for clients attending the programme?

Does treatment intervention improve physical (medical) health?

We assessed physical health using two outcome measures: the physical health subscore from the WHOQoL-BREF scale and the medical health composite (recent) subscore from the ASI.

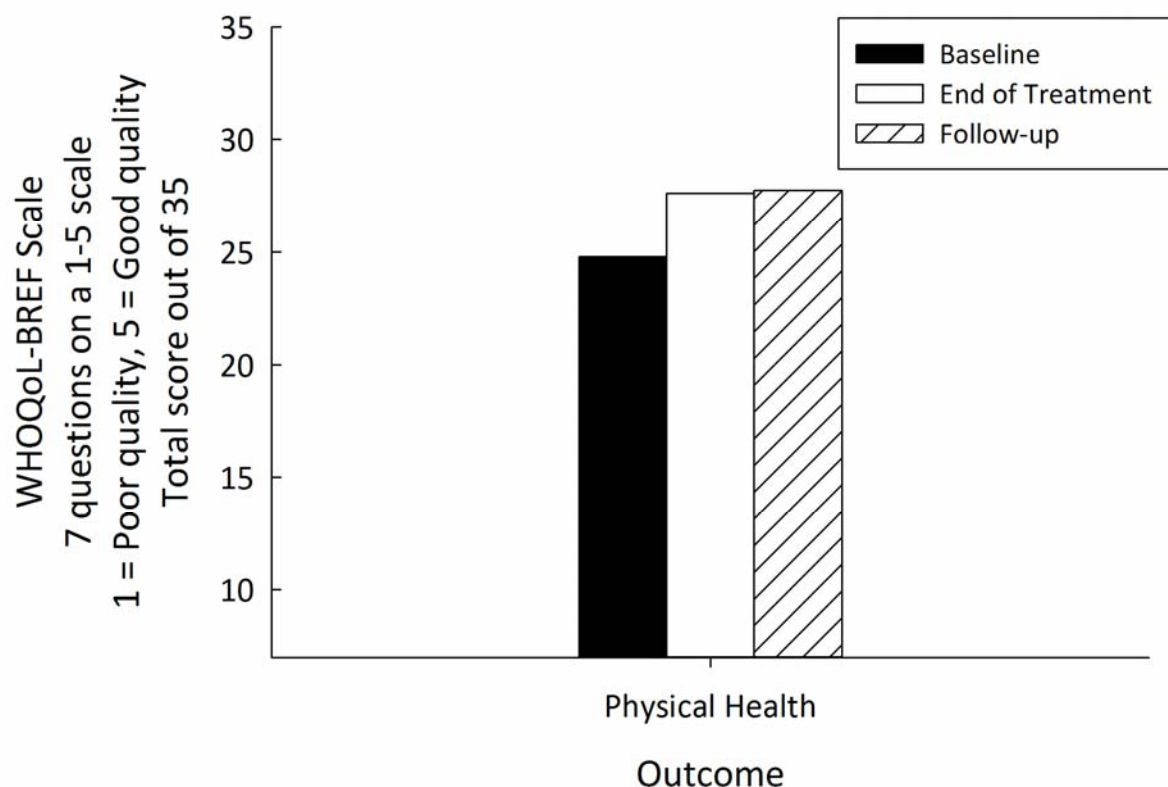


Figure 3.3. Physical health as measured by the WHOQoL-BREF physical health subscore at baseline, end of treatment, and follow-up. Note that an increase in score indicates an improvement in physical health.

Raw means (see Figure 3.3) suggested that participants' physical health improved from baseline to end of treatment (24.78 at baseline to 27.61 at end of treatment; an increase in score indicates an improvement in physical health) and this improvement was maintained at follow-up (27.73). Statistical modelling established that the improvement in physical health was significant at end of

treatment and was maintained at follow-up (i.e., no significant change from end of treatment to follow-up).

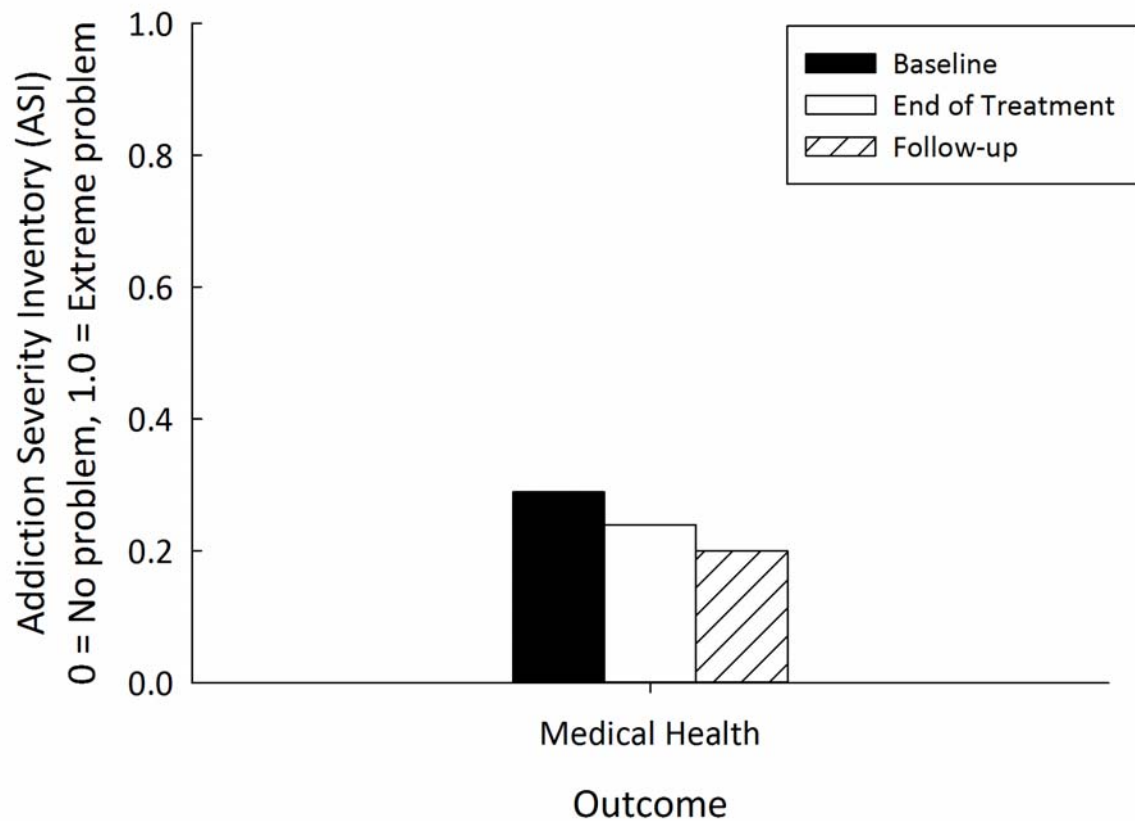


Figure 3.4. Medical health as measured by the ASI medical score at baseline, end of treatment, and follow-up. Note that a decrease in score indicates an improvement in medical health.

Raw means (see Figure 3.4) suggested that participants' medical health improved from baseline to end of treatment (0.29 at baseline to 0.24 at end of treatment; a decrease in score indicates a decrease in severity) and this improvement was maintained at follow-up (0.20). Statistical modelling established that the improvement in medical health was significant at end of treatment and was maintained at follow-up (i.e., no significant change from end of treatment to follow-up).

Does treatment intervention improve mental health?

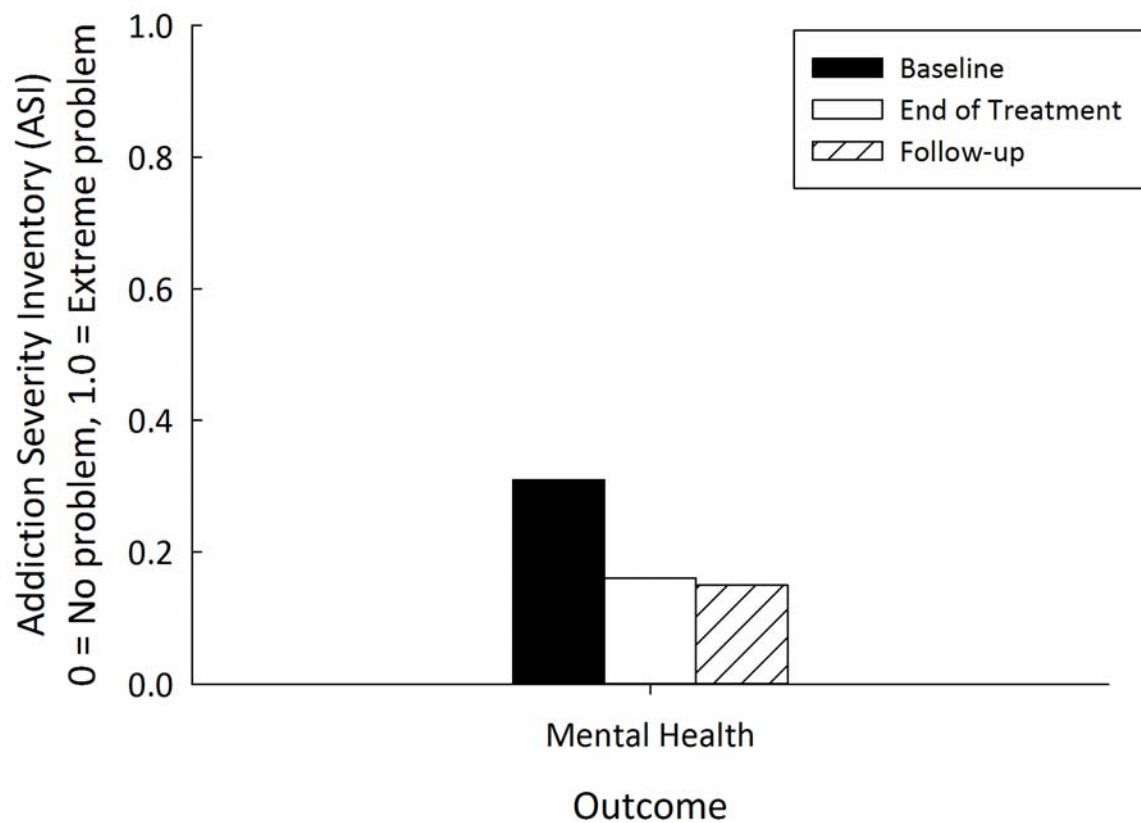


Figure 3.5. Mental health as measured by the ASI psychiatric score at baseline, end of treatment, and follow-up. Note that a decrease in score indicates an improvement in medical health.

Raw means (see Figure 3.5) suggested that participants' mental health improved from baseline to end of treatment (0.31 at baseline to 0.16 at end of treatment; a decrease in score indicates a decrease in severity) and this improvement was maintained at follow-up (0.15). Statistical modelling established that the improvement in mental health was significant at end of treatment and was maintained at follow-up (i.e., no significant change from end of treatment to follow-up).

Does treatment intervention improve social functioning?

We assessed social functioning using two outcome measures: the family/social status subscore from the ASI and the interpersonal consequences of use subscores from the DrInC (for users of alcohol) and InDUC (for users of drugs).

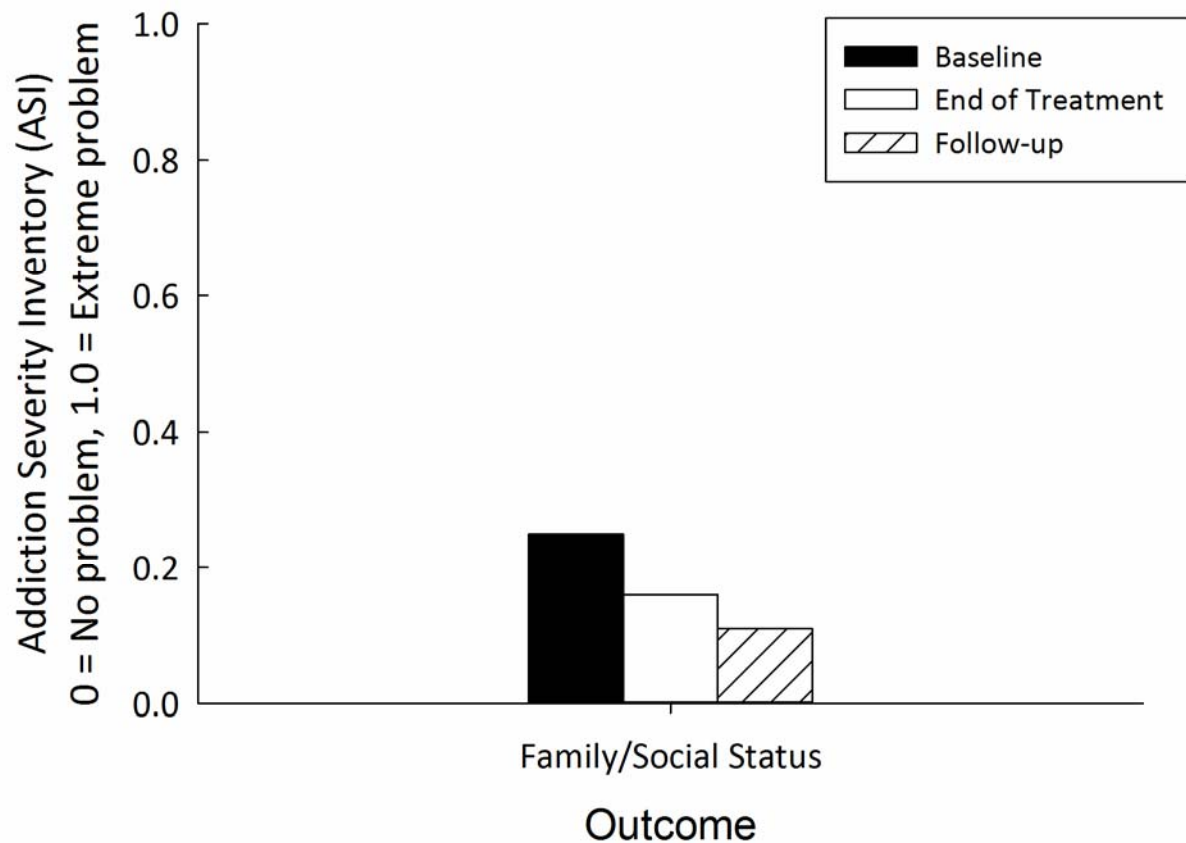


Figure 3.6. Social functioning as measured by ASI family score at baseline, end of treatment, and follow-up. Note that a decrease in score indicates an improvement in functioning.

Raw means (see Figure 3.6) suggested that participants' family/social status scores improved from baseline to end of treatment (0.25 at baseline to 0.16 at end of treatment; a decrease in score indicates an improvement), and this improvement was maintained at follow-up (0.11 at follow-up). Statistical modelling established that participants' family/social status had significantly improved at end of treatment, and was maintained at follow-up (i.e., no significant change from end of treatment to follow-up).

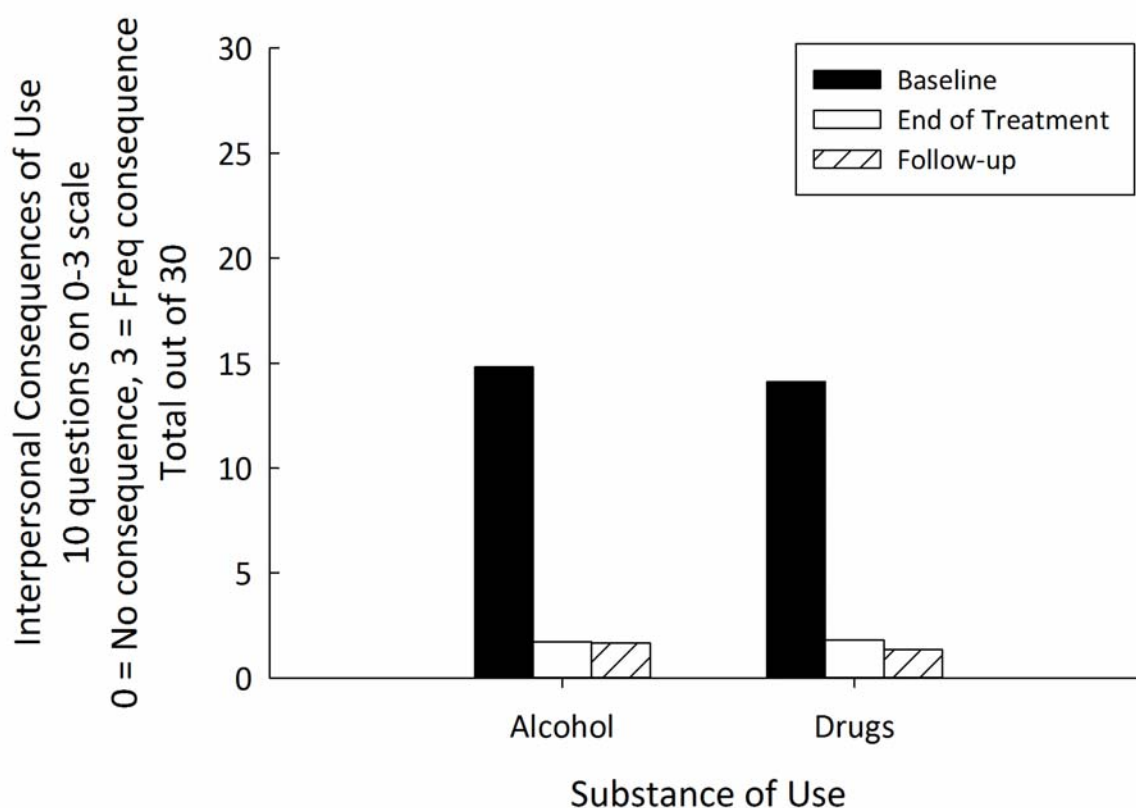


Figure 3.7. Social functioning as measured by the Interpersonal subscores of the DrInC and InDUC at baseline, end of treatment, and follow-up. Note that a decrease in score indicates an improvement in functioning.

Raw means (see Figure 3.7: Alcohol) suggested that the interpersonal consequences of participants' alcohol use improved from baseline to end of treatment (14.81 at baseline to 1.73 at end of treatment; a decrease in score indicates an improvement), and this improvement was maintained at follow-up (1.66). Statistical modelling established that the improvement in social functioning at end of treatment for users of alcohol was significant, and the improvement was maintained at follow-up (i.e., no significant change from end of treatment to follow-up).

The pattern of findings was identical for the interpersonal consequences of participants' drug use (see Figure 3.7: Drugs). Participants' scores improved from baseline to end of treatment (14.11 at baseline to 1.80 at end of treatment) and was maintained at follow-up (1.35). Statistical modelling established that the improvement in social functioning for users of drugs was significant at end of treatment and was maintained at follow-up (i.e., no significant change from end of treatment to follow-up).

For the participants whose nominated significant other provided corroborating information about the interpersonal consequences of the participant's alcohol and/or drug use ($n = 142$), we examined whether there was a correlation between participants' scores and the scores provided by the significant others. At baseline, there was a significant correlation between participants' scores and their significant others' scores on both the alcohol and the drug use measures (alcohol $r = .343$, $p =$

.016; drugs $r = .378$, $p = .015$). That is, overall, significant others agreed with how participants perceived the interpersonal consequences of their alcohol and/or drug use. At end of treatment, and at follow-up, on the other hand, there was no correlation between participants' scores and significant others' scores indicating neither clear agreement or disagreement between the participant and significant other. Further analysis showed that when the scores from end of treatment and follow-up were classified into one of three categories of consequence (low, medium, or high) then the percentage of agreement (number of agreements divided by the number of agreements + disagreements) between the participant and the significant other ranged from 91% to 100% for both the alcohol and the drug measures.

Does treatment intervention improve perceived quality of life?

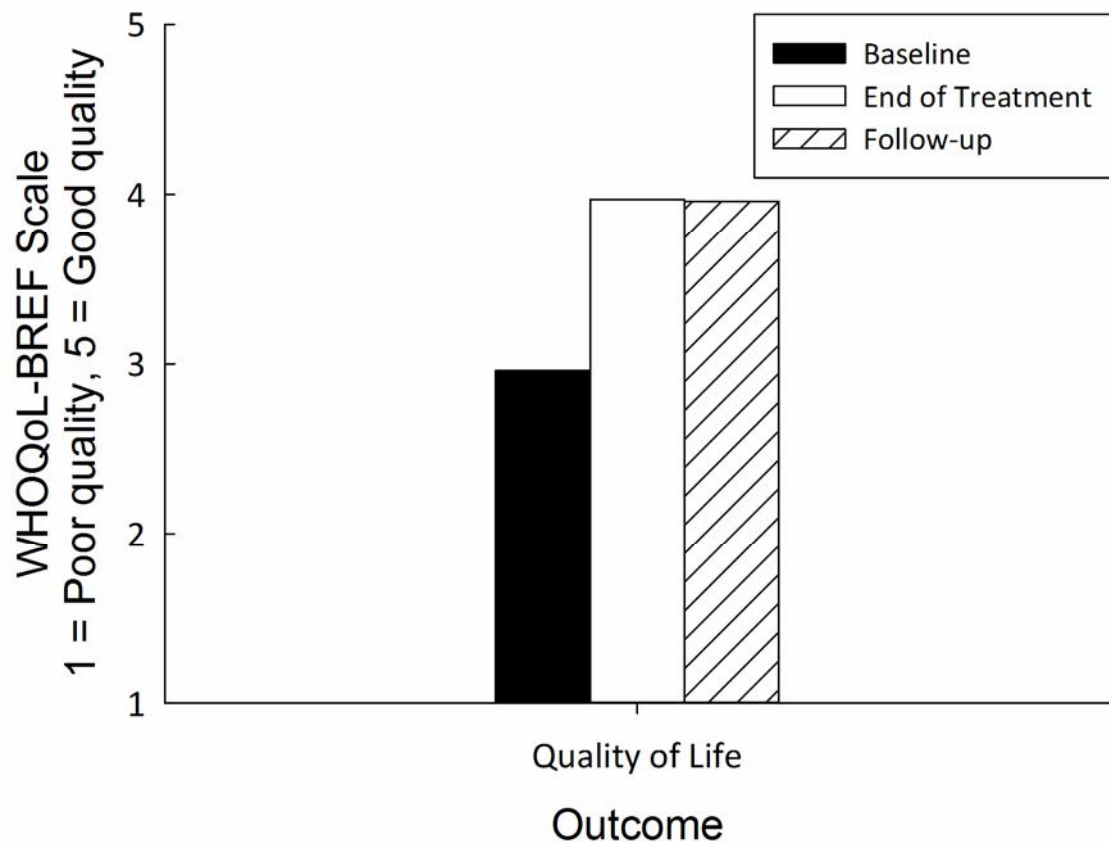


Figure 3.8. Quality of life as measured by the WHO QoL BREF Question 1 (life) at baseline, end of treatment, and follow-up. Note that an increase in score indicates an improvement in quality of life.

Raw means (see Figure 3.8) suggested that participants' quality of life improved from baseline to end of treatment (2.96 at baseline to 3.97 at end of treatment; an increase in score indicates an improvement) and this improvement in quality of life was maintained at follow-up (3.96). Statistical modelling established that the improvement in quality of life at end of treatment was significant, and the improvement was maintained at follow-up (i.e., no significant change from end of treatment to follow-up).

Does treatment intervention improve employment status

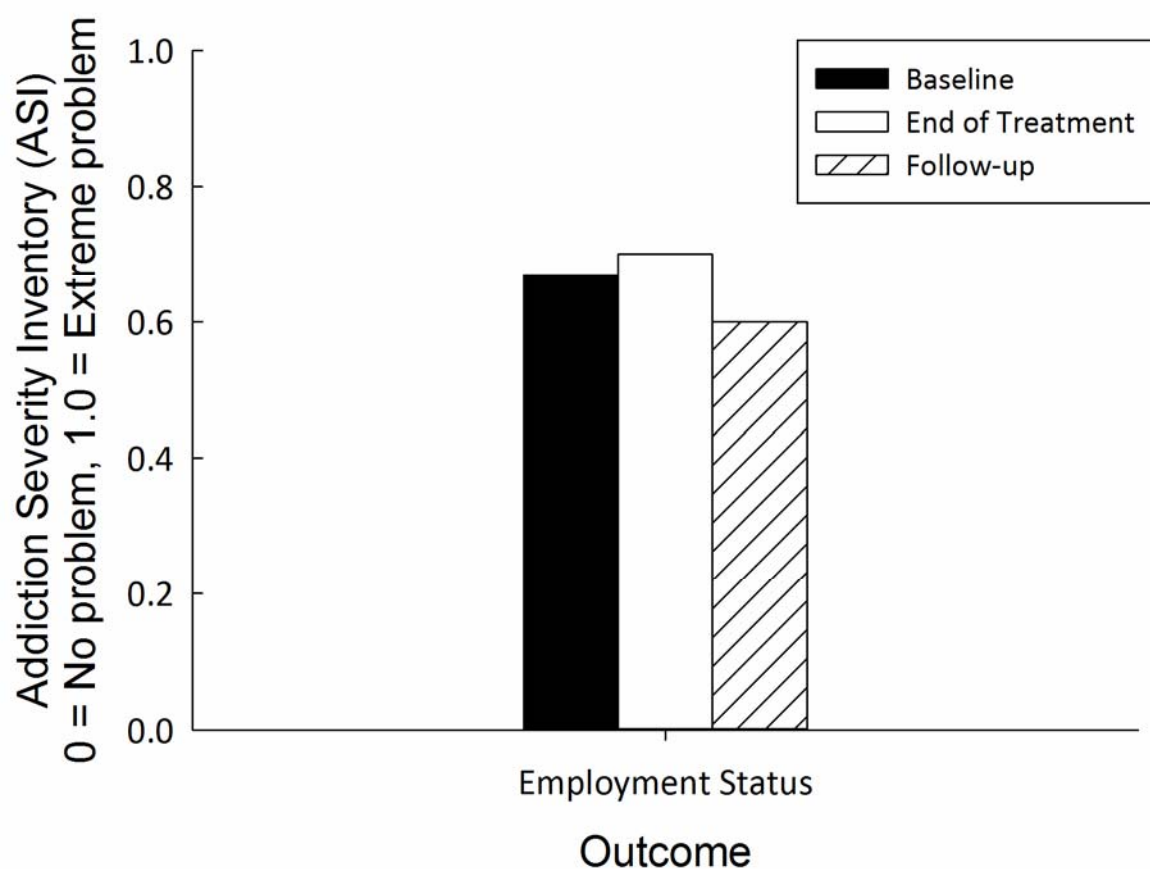


Figure 3.9. Employment status as measured by the ASI employment composite (recent) score at baseline, end of treatment, and follow-up. Note that a decrease in score indicates an improvement in employment status.

Raw means (see Figure 3.9) suggested that participants' employment status declined from baseline to end of treatment (0.67 at baseline to 0.70 at end of treatment, an increase in score indicates a reduction in employment). There was, however, an improvement in employment status at follow-up compared to baseline (0.60 at follow-up). Statistical modelling established that the decline in employment status at end of treatment compared to baseline was significant. Employment status at follow-up, however, was significantly improved compared to baseline and end of treatment.

Does treatment intervention reduce the overall negative consequences of alcohol or drug use?¹⁵

Table 3.6 shows the raw means for participants' scores on the OVERALL CONSEQUENCES of alcohol use and drug use measures (Alcohol: DrInC; Drugs: InDuc) by use classification.

Table 3.6. Mean scores (sd) for consequences of alcohol use and drug use at baseline, end of treatment, and follow-up for each use classification.

	Baseline	End of Treatment	Follow-up
Overall consequences of alcohol use:			
<i>Users of only alcohol</i>	DrInC (alcohol) total: 71.59 (20.28)	DrInC (alcohol) total: 8.09 (17.58)	DrInC (alcohol) total: 8.76 (19.74)
<i>Users of alcohol & single drug</i>	DrInC (alcohol) total: 59.90 (39.67)	DrInC (alcohol) total: 2.26 (5.22)	DrInC (alcohol) total: 11.87 (18.94)
<i>Users of alcohol and multiple drugs</i>	DrInC (alcohol) total: 42.92 (34.66)	DrInC (alcohol) total: 11.29 (28.82)	DrInC (alcohol) total: 6.13 (13.71)
Overall consequences of drug use:			
<i>Users of single drug only (no alcohol)</i>	InDuc (drug) total: 55.09 (31.66)	InDuc (drug) total: 7.56 (12.50)	InDuc (drug) total: 6.30 (14.30)
<i>Users of multiple drugs (no alcohol)</i>	InDuc (drug) total: 82.09 (28.41)	InDuc (drug) total: 0 (0)	InDuc (drug) total: --
<i>Users of single drug & alcohol</i>	InDuc (drug) total: 57.44 (37.74)	InDuc (drug) total: 0.52 (1.59)	InDuc (drug) total: 8.35 (18.05)
<i>Users of multiple drugs & alcohol</i>	InDuc (drug) total: 62.04 (29.96)	InDuc (drug) total: 15.13 (30.24)	InDuc (drug) total: 5.79 (11.18)

¹⁵ Both the Drinker Inventory of Consequences (DrInC) and the Inventory of Drug Use Consequences (InDuc) consist of 45 questions, each scored on a 0 – 3 scale (0 = no consequence, 3 = frequent consequence) yielding a total score of between 0 – 135.

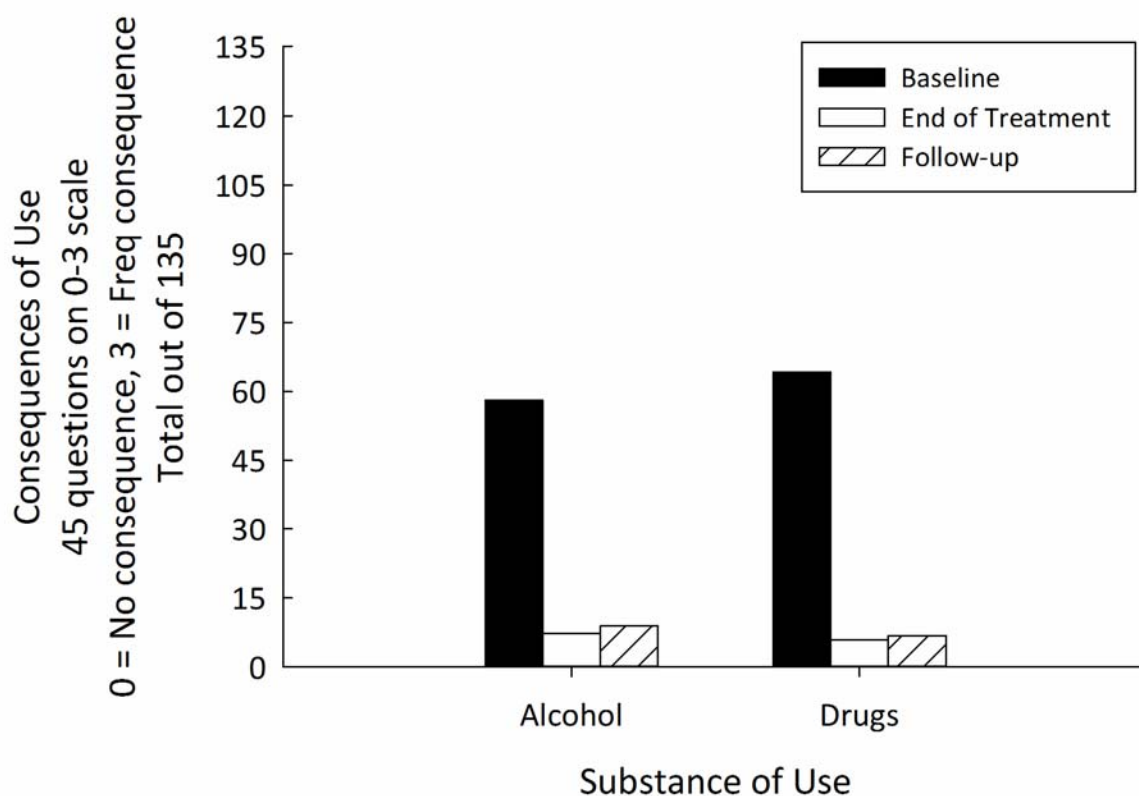


Figure 3.10. Overall CONSEQUENCES of alcohol use and drug use as measured by the DrInC and the InDUC at baseline, end of treatment, and follow-up. The data are shown collapsed across use classification.

Raw means (see Figure 3.10: Alcohol) suggested that the overall consequences of participants' alcohol use improved from baseline to end of treatment (58.14 at baseline to 7.20 at end of treatment; a decrease in score indicates an improvement), and this improvement was maintained at follow-up (8.92). Statistical modelling established that the consequences of participants' alcohol use were significantly reduced at both end of treatment and follow-up, and this reduction was maintained at follow-up (i.e., no significant change in consequences of use from end of treatment to follow-up).

The pattern of findings was identical for the overall consequences of participants' drug use (see Figure 3.10: Drugs). Participants' scores improved from baseline to end of treatment (64.17 at baseline to 5.80 at end of treatment) and were maintained at follow-up (6.81). Statistical modelling established that the improvement in social functioning for users of drugs was significant at end of treatment and was maintained at follow-up (i.e., no significant change from end of treatment to follow-up).

Criminality

We assessed participants' criminality using their responses to Questions 41 and 42¹⁶ from the Inventory of Consequences (DrInC for those assessed as alcohol users and InDUC for those assessed as drug users). Question 41 related to arrests for driving under the influence of alcohol or drugs and Question 42 asks about trouble with the law.

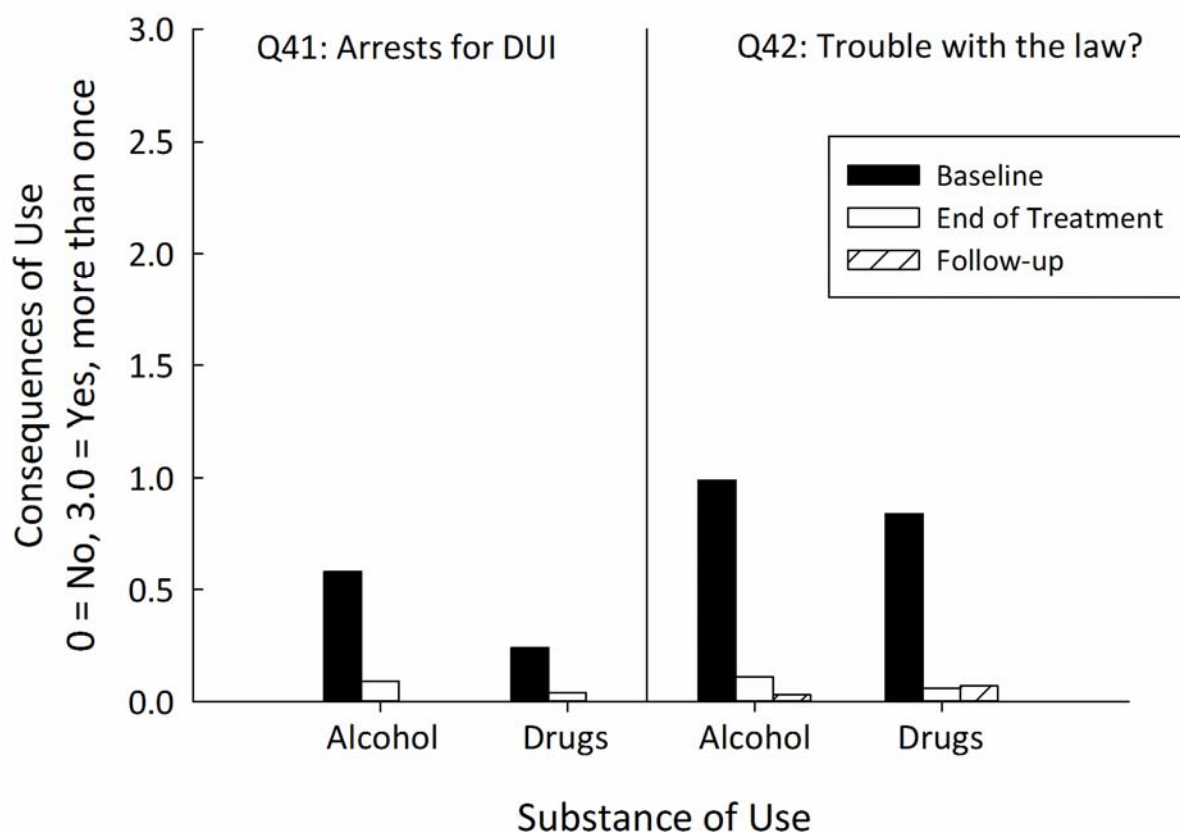


Figure 3.11. Mean scores on the questions on the DrInC (for users of alcohol) and InDUC (for users of drugs) assessing participants' criminal status at baseline, end of treatment, and follow-up.

Figure 3.11 shows raw means for participants' responses to Questions 41 and 42 from the Inventory of Consequences (DrInC for those identified as alcohol users and InDUC for those identified as drug users). We calculated confidence intervals to compare participants' criminal status between the 3 time periods (see Appendix 3.9).

On the whole, the criminal status of the population was not extreme (i.e., all raw means are less than 1 on a scale of 0-3). Although arrests for DUI (see left panel, Q41) decreased over the evaluation period, these declines were not statistically significant for neither participants identified as users of alcohol nor participants identified as users of drugs. There was, however, a significant

¹⁶ Questions 41 and 42 of the DrInC and InDUC are measured on a scale of 0 to 3, 0 = 'never arrested for DUI' or 'never had trouble with the law', 3 = 'arrested more than once for DUI' or 'had trouble with the law more than once.'

decline between baseline and end of treatment for participants' scores on the question asking about trouble with law; this improvement in criminal status was maintained at follow-up.

3.3.5 Changeable personal factors related to good treatment outcome:

4. Does the Bridge Programme Model of Treatment alter changeable personal factors that are related to good outcome?

To answer this question, we examined changes in participants' scores at each time point on the measures assessing readiness to change (an indicator of motivation), self-efficacy (an individual's confidence in his or her ability not to use a substance), and locus of control (whether an individual thinks that the outcome of important life events are under personal control (internal locus of control) or under the influence of chance, fate, or powerful others (external locus of control)).

Readiness to Change (RTCQ): At baseline, end of treatment, and follow-up, each participant was evaluated as being at one of 3 stages of change, (1) Pre-contemplation, (2) Contemplation, and (3) Action. Figure 3.12 shows the percentage of participants who were in the Pre-contemplation or Contemplation stage or at the Action stage at baseline and end of treatment. Between baseline and end of treatment, the majority of participants moved from the Pre-contemplation or Contemplation stage to the Action stage.

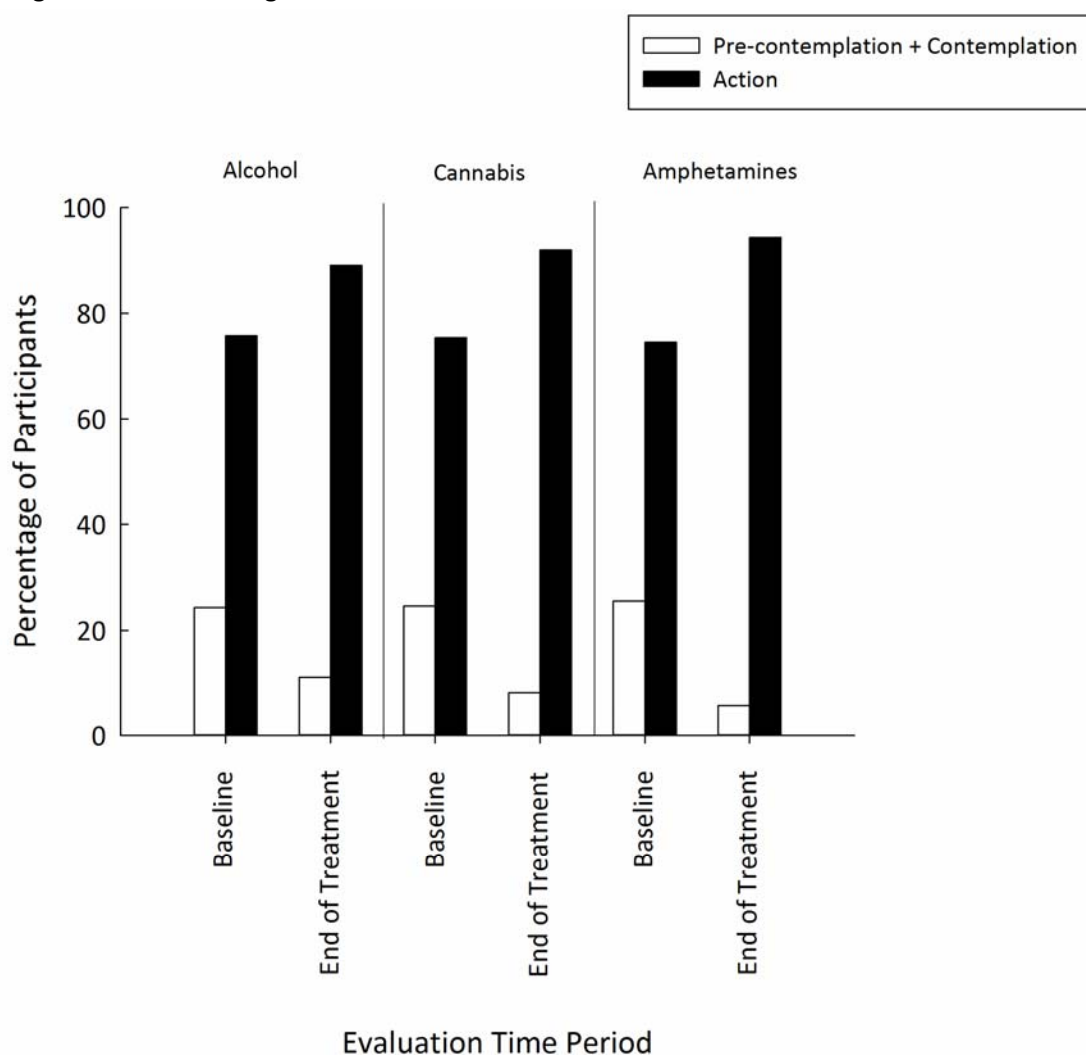


Figure 3.12. Percentage of participants who were in the Pre-contemplation or Contemplation stage or at the Action stage at baseline and end of treatment. The data are shown separately for users of alcohol, cannabis, and amphetamines.

Self-Efficacy and Locus of Control

We calculated a series of paired t-tests to compare participants' scores at each time point on the measures assessing self-efficacy and locus of control.

Self-Efficacy: At baseline, end of treatment, and follow-up, we assessed each participant's confidence to abstain from using, for each substance. Scores ranged from 1 indicating the person was unlikely to abstain to 5 where they were extremely likely to abstain.

- **Alcohol users:** Participants' confidence to abstain increased significantly between baseline and end of treatment (2.97 at baseline versus 3.81 at end of treatment), indicating a shift toward participants being more confident in their ability to abstain, this shift was also seen between baseline and follow-up (2.97 versus 3.81). There was no change in confidence to abstain between baseline and follow-up.
- **Cannabis users:** Participants' confidence to abstain increased significantly between baseline and end of treatment (2.77 at baseline versus 4.12 at end of treatment), indicating a shift toward participants being more confident in their ability to abstain, this shift was also seen between baseline and follow-up (2.62 versus 4.03). There was no change in confidence to abstain between baseline and follow-up.
- **Amphetamine users:** Participants' confidence to abstain increased significantly between baseline and end of treatment (2.49 at baseline versus 3.77 at end of treatment), indicating a shift towards participants being more confident in their ability to abstain, this shift was also significant between baseline and follow-up (2.58 versus 4.03). There was no change in confidence to abstain between end of treatment and follow-up.

Locus of Control: At baseline, end of treatment, and follow-up, we measured the extent to which participants believed that outcomes are under personal (internal) control or alternatively, are under the influence of chance (external control).

- **Alcohol users:** Participants' perceived locus of control changed significantly between baseline and end of treatment with a shift from a more external view of control to a more internal view of control (9.89 at baseline versus 4.82 at end of treatment). This change was also seen between baseline and follow-up (9.73 versus 4.56). There was no change in perceived locus of control between end of treatment and follow-up.
- **Drug users:** Participants' perceived locus of control changed significantly between baseline and end of treatment with a shift from a more external view of control to a more internal view of control (1.48 at baseline versus 1.14 at end of treatment). This change was also seen between baseline and follow-up (1.4 versus 1.20). The change from a more internal view to an external view between end of treatment and follow-up (1.14 versus 1.20) approached significance.

3.3.6 Recovery

5. Does the Bridge Programme Model of Treatment alter participants' perceptions of how close they are to recovery?

To answer this question, we examined participants' responses to a question on the ADOM¹⁷ that asks "Overall, how close are you to where you want to be in your recovery?" Participants were asked to indicate their answer on a 1 – 10 scale, with 10 being the 'best possible'.

At baseline, 28.8% of participants responded with a rating of 7 or above (i.e., 7 or above is indicative of scores close to where they want to be in recovery)¹⁸ whereas at end of treatment, 77.9% of participants responded with a 7 or above. This increase was maintained at follow-up, with 74.5% of participants responding with a 7 or above score. A series of paired t-tests comparing participants' scores on the recovery question between each time point indicated that participants' perception of how close they were to where they wanted to be in their recovery improved significantly between baseline and end of treatment (4.99 at baseline versus 7.45 at end of treatment -- i.e., participants were shifting towards feeling closer to where they wanted to be in recovery). There was also a significant increase in score between baseline and follow-up (4.69 versus 7.52). There was no change in participants' perception of how close they were to where they wanted to be in their recovery between end of treatment and follow-up.

¹⁷ Note: The ADOM measure of recovery has not yet been validated. We have used it here as an estimate of recovery.

¹⁸ The ADOM does not report this cut-off score. The research team made the decision that 7 or above was at the higher end of the scale range.

3.4 Discussion

The results of the present evaluation demonstrate that clients who completed sufficient treatment to have experienced a therapeutic dose of treatment while on the Bridge Programme successfully reduced their substance use, regardless of the problematic substance (i.e., whether alcohol, cannabis, amphetamines, or synthetic drugs). The reduction in substance use was substantial with clients reducing substance use from frequent use (e.g., mean of 8 or 9 days per month) to 1 or less days of use per month. Treatment interventions that reduce substance use by half are considered clinically meaningful (Donovan et al., 2012a). Not only was substance use reduced significantly by the end of treatment, but at follow-up, reduction in substance use was maintained. Alcohol use did increase slightly from end of treatment to follow-up, but alcohol use at follow-up was still much lower than prior to treatment. Furthermore, the majority of those who completed treatment were abstinent at the end of treatment (89% – 100% of participants) and at follow-up (62% - 100% of participants).

Days of substance use highlights frequency of use but does not tell us about the severity of the use or whether problematic use is ameliorated. When we examined the severity of use (via the ASI-MV composite severity scores), those who had completed a sufficient dose of Bridge Programme treatment evidenced a significant reduction in substance-use severity scores. The ASI severity scores do not have clinical cut-off scores, instead the ASI produces a problem severity score for alcohol and or drug use ranging from 0 (i.e., not severe/no problem) to 1 (i.e., severe). Severity is defined in terms of a “need for additional treatment” (McLellan, Luborsky, Woody, & O'Brien, 1980) with low severity indicating no additional treatment required. In the present evaluation, those who had problematic alcohol use, with or without problematic drug use, went from moderate severity to low levels of severity. Those who had problematic drug use reduced from low-moderate levels of severity to very low levels of severity at the end of treatment. Furthermore, the reduction in severity of alcohol or drug use remained unchanged at a 3-month follow-up, indicating that severity of substance use had been substantially reduced and that this reduction was maintained over the follow-up period.

The present evaluation also demonstrated that for those who completed a sufficient dose of Bridge Programme treatment, there were improvements in consequential outcomes (i.e., in physical health, mental health, social functioning, employment status, and quality of life) as well as reductions in adverse consequential outcomes (i.e., negative consequences of alcohol or drug use, criminology). Furthermore, these improvements in functional outcomes remained at follow-up. The amount of, or degree of change, varied across the consequential outcomes measured. In some domains, there was a large degree of change that would have been personally and clinically salient. For example, the psychiatric severity score was nearly halved suggesting substantial reduction in psychiatric burden. Quality of life shifted from being “neither poor nor good” to “good.” The adverse consequences of substance use (e.g., effects of over drinking, intrapersonal and interpersonal consequences, impairments in social responsibility, poor impulse control) reduced from scores that were indicative of “moderate” to “high” negative consequences to scores that were indicative of “very low” negative consequences (Miller et al., 1995). Furthermore, social functioning in terms of damage or loss related to family, friends, impairment of parenting, harm to family, others’ concern about the substance use, damage to reputation (e.g., embarrassing actions) were notably reduced. Criminal

status also showed substantial improvements so that by the end of treatment and follow-up, there were very low rates of trouble of being in trouble with the law. These substantial reductions in negative consequences would be personally salient to the individual and their family. In other domains, the changes were less substantial but an improvement was still noted. For example, although physical health was perceived to have improved, the degree of improvement was not substantial. Social functioning improved, but the overall improvement was small. Vocational status (i.e., employment) was not improved by end of treatment. Given that The Salvation Army Bridge Programme is primarily a residential (live-in) programme, participants were unable to work during the treatment period. It is then not surprising that employment status did not improve during the period in which Salvation Army participants were being actively treated on site. The reduction in employment status was restricted, however, to the duration of the treatment programme and at follow-up, employment status had improved to be significantly better than at baseline (albeit to a small degree). That employment status did not improve to a large degree may be related to a number of other personal and societal factors (e.g., unemployment rates, skill level, gaps in employment history) outside the scope of AOD treatment but it does, however, indicate an area where AOD clients may need additional post-treatment support.

Overall then, there is evidence that both primary (i.e., substance use) and secondary outcomes (i.e., consequential/functional outcomes) were improved following treatment in the Bridge Programme. Importantly, at follow-up, with the exception of alcohol days of use, all improvements were maintained. This is notable in terms that at follow-up, the participant has moved from an active treatment phase in which the environment was highly supportive of, and structured for, non substance use, to normal social and contextual environments that contain a number of environmental risk factors (i.e., access to substances, social and contextual cues to substance use). The fact that participants maintained gains at follow-up indicates that the Bridge Programme of treatment was not only effective in the short term (whilst participants were under active treatment), but it was also effective in the longer term (once participants had returned to their daily living environments). Although the alcohol days of use increased at follow-up, they were still substantially below the level seen prior to treatment. Given that the severity of alcohol use remained the same at follow-up, it indicates that although days of use had increased slightly, the severity of the alcohol use had not. When we examined how satisfied participants were with their recovery process, most participants indicated that they felt that they were close to where they wanted to be in their recovery process.

The results of the present evaluation also provide evidence that personal changeable factors that are related to good outcome shifted in a positive direction during Bridge Programme treatment. For example, participants' self-efficacy (their confidence to abstain from substance use) was enhanced by the end of treatment. Numerous studies have been conducted examining the effect of self-efficacy on treatment outcomes in the AOD research field. The majority of this research concludes that self-efficacy is associated with good treatment outcomes and is protective in terms of long-term treatment outcomes (see Kadden & Litt, 2011, for a review). Participants' motivation also had changed by the end of Bridge Programme treatment. Motivation is a multidimensional domain and is not easily captured by one instrument. In the present evaluation, we measured an individual's motivation for treatment via the readiness to change questionnaire (RTCQ). By the end of treatment, most participants had shifted to a later stage of change (i.e., action), indicative of good motivation.

Motivation is considered a major mediating factor in AOD treatment success. It is also viewed as a predictor of treatment success (Adamson et al., 2009). That is, those who are motivated to engage in substance use treatment have significantly better treatment outcomes than those who are not (De Leon, Melnick, Thomas, Kressel, & Wexler, 2000; Simpson & Joe, 1993). We also found that participants' locus of control had shifted from a more external locus of control at baseline to a more internal locus of control by end of treatment. Previous research in the AOD field indicates that an externally-orientated locus of control is associated with unfavourable treatment outcome and that an internally-orientated locus of control is important in recovery (Canton et al., 1988; Koski-Jannes, 1994).

In the present evaluation, a number of the participants who entered the Bridge Programme did not complete a sufficient dose of Bridge treatment (i.e., 30%)¹⁹. Reasons for non-completion were varied and mostly included changes in life or living situation, non-engagement in the programme, or being asked to leave the programme due to inappropriate behaviour or using or having banned substances on site. A number of factors have been associated with drop-out (e.g., younger age, lack of motivation for treatment, lower severity of substance use, cognitive difficulties; Brorson, Arnevik, Rand-Hendrickse, & Duckert, 2013; McKellar, Kelly, Harris, & Moos, 2006; Stark, 1992). In the present evaluation, we compared the baseline characteristics of participants who completed treatment to the baseline characteristics of participants who did not, and did not find any differences between the two groups. Drop-out from AOD treatment is not uncommon and is recognised as an ongoing challenge for all AOD treatment providers. (Ball, Carroll, Canning-Ball, & Rounsaville, 2006; McKellar et al., 2006; Stark, 1992). Recent studies that have examined drop-out or non-completion of treatment indicate varying rates dependant on the population studied and the substance used. Drop-out rates ranging from 19% to 67% (e.g., Craig & Olson, 1990; Deane, Wootton, Hsu, & Kelly, 2012; Kelly & Moos, 2003; Specka, Buchholz, Kuhlmann, Rist, & Scherbaum, 2011) were common. The drop-out rate in the present evaluation is well within this range and so not extraordinary. However, given that one of the most consistent findings across the AOD research field is that completion of treatment is associated with abstinence, lower relapse, and reduced criminality (Brorson, et al., 2013; Stark, 1992), retaining clients in treatment is paramount. The outcome for clients who drop out of treatment is typically poor with no improvement and an increased risk of relapse, as well as additional health and legal difficulties (Brorson et al., 2013; Caldeiro et al., 2008; Hawkins, Baer, & Kivlahan, 2008). Research is now exploring ways to enhance persons' engagement and retention in treatment via motivational and other short-term interventions early in treatment (e.g. Carroll et al., 2006). Establishing evidence-based ways of improving retention would be considered useful in enhancing treatment outcome.

To evaluate the effectiveness of the Bridge Programme, we also needed to consider the characteristics of the study population. For example, previous research indicates that severity of problematic use, and high psychiatric morbidity are likely to impact negatively on treatment success. In the present evaluation, the population consisted of persons with a diagnosed serious alcohol or drug problem. When we looked at the psychiatric morbidity of the population, there was also a substantial level of psychiatric burden. Despite the population having serious substance use and

¹⁹ The 30% non-completion rate is based only on the participants who took part in the evaluation. The non-completion rate therefore does not give a rate for the entire Bridge Programme client population.

some psychiatric burden, the present evaluation provides evidence that the Bridge Programme is able to deliver good treatment outcomes to such a population²⁰.

Limitations/caveats of the present evaluation

The present research was a programme evaluation and not a randomised control study. It was set up to answer the research question, “Is the Bridge Programme effective at treating substance use problems for clients who attend the programme?” The present analysis, therefore, cannot provide an explicit comparison of the Bridge treatment programme to other treatment programmes nor to persons not receiving treatment (e.g., a wait-list control). Furthermore, given that clients who are referred to the Bridge Programme have come for treatment, or are viewed as needing treatment and the Bridge Programme is there to provide such treatment, it was not deemed suitable or ethical to delay treatment start (as would occur in a wait-list control experiment). In addition, delaying treatment would not have fitted with The Salvation Army’s philosophy of Christianity through social action, so an experimental wait-list control study was never considered. We do, however, examine the effectiveness of The Salvation Army’s Bridge Programme in relation to other international treatment programmes (see Chapter 4 of the report).

In terms of the evaluation, we only considered and analysed treatment outcome data for participants who completed a sufficient dose of Bridge treatment. Despite our best efforts, we were unable to obtain sufficient end of treatment or follow-up data from those who did not complete a dose of Bridge treatment. For this reason, we can only comment on the effectiveness of the programme for those who completed treatment. Furthermore, although at end of treatment, the majority of participants (76% of participants who received a dose of treatment) completed assessment measures, at follow-up, only approximately half of the participants completed assessment measures. Higher rates of assessment data at follow-up would have increased the generalisability of our evaluation results and limited any potential bias in our results due to not having data from a number of participants who did not complete treatment (e.g., did the participants who completed 3 month follow-up assessment measures differ systematically from those who did not). Low follow-up rates, however, are not uncommon in research studies in the AOD field and are recognised as one of the major problems in assessing the long-term success of treatment programmes.

In the present evaluation, the follow-up period was 3 months. The 3-month follow-up was chosen because it fitted within the time frames of the study period. Ideally, follow-up would continue to occur over a longer period of time (e.g., 6 months, 1 year, 2 years, and 5 years). A longer follow-up period would allow us to see the effects of treatment over an extended period of time.

The results of the present evaluation rely on self-report data. We examined the accuracy of participants’ self-report by comparing participants’ scores of the adverse consequences related to alcohol and drug use to scores reported by their nominated significant other. We found that, overall, the participant and his or her significant other generally agreed on the level of adverse consequences from AOD use. This indicates that scores from self-report measures are likely to

²⁰ Future analyses will be required to clarify this further.

accurately reflect participants' current circumstances, however, we did not corroborate scores on all outcome measures and we therefore only have an approximate measure of accuracy.

In the present evaluation, we used an extensive psychometric battery to ensure that as many factors as possible that could have impacted on treatment outcome were examined. Furthermore, we used a range of outcome measures with some overlapping domain components (e.g., the ADOM and the ASI-MV). We used multiple outcome measures so that we could compare the Bridge Programme outcomes with international research outcomes. We also had to consider the comparability of the data we collected with other New Zealand outcome data. For example, we used the ADOM in addition to other measures because from July 1 2015, the Ministry of Health (MOH) is using this measure nationwide to provide consistency in the measurement of treatment outcomes in New Zealand AOD treatment programmes. Use of the ADOM in the present evaluation will allow The Salvation Army to compare its nationwide ADOM data to data from other New Zealand treatment programme. We acknowledge that the extensiveness of the psychometric battery may have been a burden for some participants in terms of the time and effort it required to complete. We do not think that it is necessary nor appropriate for any on-going measurement of treatment outcomes in the Bridge Programme to use such an extensive psychometric battery.

In conclusion, although the present evaluation has some of the limitations that are common in the AOD field, the evaluation does provide evidence that the Bridge Programme Model of Treatment is effective for clients who complete treatment.

3.5 References

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CHAPTER 4.

The effectiveness of the Bridge Programme in relation to international substance abuse treatment programmes: A systematic review

4.1 Introduction

As demonstrated in Chapter 3, Salvation Army clients who completed more than half the Bridge Programme of treatment had substantial reductions in substance use, improvement in real world functional outcomes, and perceived that their quality of life had improved. It is well recognised nationally and internationally that there are a variety of alcohol and drug treatment programmes that are effective in reducing harmful substance use. The question is: how does The Salvation Army Bridge Programme compare to other treatment programmes in terms of treatment outcomes?

To answer the question of how effective the Bridge Programme is in comparison to other treatment programmes, we systematically reviewed the published scientific literature relating to treatment outcomes in substance use studies, and compared key treatment outcomes from these published studies to the Bridge Programme's key outcomes.

4.2 Objective

To evaluate the effectiveness of the Bridge Programme Model of Treatment on key outcomes (i.e., reduction in harmful substance use and other functional outcomes) in comparison to other national or international treatment programmes.

4.3 Method

4.3.1 Criteria for considering the inclusion of studies in this systematic review

(i) Types of studies

Studies were included if they were clinical trials, randomised controlled trials (RCT), controlled clinical trials (CCT), or quasi-controlled trials examining psychosocial treatment outcomes for problematic drug or alcohol use.

(ii) Types of participants

Studies were included if participants were adults (17 years old or over) who had self-identified drug or alcohol problems, had received a substance-use disorder diagnosis, or had been referred for drug or alcohol treatment in a community or residential setting.

Studies were excluded if the population was not identified as having problematic substance use at baseline. Studies were excluded if they reported data solely on participants who used cocaine and opioids, or if the study collapsed drug use outcomes that included >40% of cocaine and opioid users, as these substances were rarely used by the Bridge Programme population. Studies were also excluded if the population of interest was hospital inpatients.

(iii) Types of interventions

Studies were included if they were psychosocial community-based or residential interventions that included a psychosocial treatment component. Types of interventions searched were Community Reinforcement Approach (CRA), 12 Step, Alcoholics Anonymous (AA), Narcotics Anonymous (NA), Cognitive Behavioural Therapy (CBT), Motivational Enhancement Therapy (MET), Motivational Interviewing (MI), Relapse Prevention Therapy (RPT), Community detox, sponsor, buddy or mentor programmes.

Studies with a pharmacological arm were included if the psychosocial and pharmacological interventions were independent. For example, one study included in the review involved both pharmacological and psychosocial interventions. For purposes of comparison, results were reported separately for the (i) drug only interventions, (ii) drug and psychosocial intervention and (iii) psychosocial only intervention. Studies were excluded if all participants were provided with only pharmacological treatment.

Studies were also excluded if the treatment was dual treatment of both the substance use and a mental health disorder by the same clinician²¹, or the intervention was a complementary or alternative approach (e.g., acupuncture) rather than a psychosocial approach.

The included control conditions were treatment as usual, no treatment, or wait-list control.

(iv) Types of outcomes

Studies were excluded if there was no examination of outcome of a treatment programme (e.g., the study examined increasing motivational factors to facilitate treatment entrance). No limitations were placed on the type of outcome reported by the study. Outcomes included self-report on substance use, which could be dichotomous (e.g., proportion of participants reporting abstinence) or continuous (e.g., mean number of days used in last 30 days). Outcomes also included psychometric measures to measure outcomes such as severity of use (e.g., Addiction Severity Index, ASI) and consequences of use (e.g., Drinkers Inventory of Consequences, DrInC). For comparison with the evaluation of The Salvation Army Bridge Programme, we focused on the following outcomes:

Primary outcomes:

- Reduction in alcohol or drug use
 - self-reported reduction in substance abuse (e.g., days of use)
 - self-reported reduction in severity of substance use (e.g., Addiction Severity Index, ASI)

Secondary outcomes:

- motivation for change (e.g., Readiness to Change Questionnaire)
- satisfaction with recovery
- negative consequences of substance use (e.g., Drinker Inventory of Consequences)
- physical or mental health or quality of life (e.g., WHO QoL measure of quality of life).

²¹ We did include studies in which participants were being treated for substance use and had a mental disorder that could either be treated elsewhere, by another specialist clinician, or not treated at all.

(v) Follow-up periods

Outcomes were typically reported at end of treatment or at a specified short (e.g., 3 months) or long-term follow-up period (e.g., 1 or 2 years). The exact follow-up durations are recorded for each study (see Appendix 4.2). Studies were not excluded from the review based on follow-up periods.

4.3.2 Search methods used for identification of studies

(i) Electronic searches

The following electronic databases were searched: PsycInfo, Medline, PubMed, CENTRAL, EMBASE, and CINAHL from 1947 to the end of 2014. The first search was performed on the Ovid interface which allowed the first three databases to be searched simultaneously. Separate searches were conducted on CINAHL (see Appendix 4.1 for searched Boolean phrases). Once a search was conducted, any duplicates were removed. Searches were limited to English-language, peer-reviewed journals.

(ii) Searching other resources

To ensure that all relevant articles were included, the reference lists of major systematic reviews and meta-analyses were also reviewed. If a title suggested that a particular article could be relevant, a hand search for the article was conducted, and any that met the criteria were also included in the final review.

4.3.3 Selection of studies

Studies for the review were selected through a 3-step process carried out by two of the research team. Any disagreements were resolved by discussion within the research team. In the first step, one researcher read all article titles and selected those that appeared potentially eligible for inclusion, according to inclusion criteria. In the second step, the researcher read the titles and abstracts of all potentially eligible articles and retained the abstracts of articles that were still potentially eligible based on selection criteria. In the third step, all potentially eligible articles were read in full and those that met eligibility criteria were included.

4.4 Results of the search

The electronic search returned 683 articles, or 672 articles after duplicates were removed. We excluded 606 articles based on the title or abstract, leaving 66 potentially eligible articles to be read in full. Hand-searching titles and abstracts from reference lists of major systematic reviews and meta-analyses resulted in an additional 21 articles being considered eligible and full reports being read.

Full reading of the 87 articles resulted in 17 studies that met inclusion criteria (see Appendix 4.2 for the full list of selected papers). The 17 studies were reported across 25 articles (i.e., some studies were described in full across multiple articles (e.g., the MATCH study was reported across 7 separate articles and the study by Morgenstern et al., 2001, 2003 was reported across two articles).

4.4.1 Participants

Participants in the 17 studies were adult males and/or females treated for alcohol only problems (n = 8 studies; Brown et al., 2010, COMBINE, 2006; Drummond et al., 2009; Locastro et al., 2008; MATCH, 1993-2001; McCrady et al., 1999; Riper et al., 2007; Shakeshaft et al., 2002), for drug only problems (n = 3 studies, Carroll et al., 2006b; Copeland et al., 2001; McDonnell et al., 2013) and for alcohol and or drug problems (n = 6 studies, Campbell et al., 2014; Carroll et al., 2006a; Greenfield et al., 2007; Morgenstern et al., 2001; Rosenblum et al., 2005, 2014).

The mean age of participants ranged from 21 to 58.3 years across the 17 studies reviewed²² (mean age of participants in each study is described in the summary of each reviewed study, see Appendix 4.2).

The majority of studies excluded participants with severe mental disorder, psychosis, or a mental illness that was not stable, required active treatment, or in some way contra-indicated participation in the study (n = 10 studies, Brown et al., 2010, Carroll et al., 2006a, 2006b; COMBINE, 2006; Copeland et al., 2001; Drummond et al., 2009; Greenfield et al., 2007; MATCH, 1993-2001; McCrady et al., 1999; Morgenstern et al., 2001). Other studies did not mention mental disorder as either an exclusion or inclusion criteria (n = 5 studies, Campbell et al., 2014; Locastro et al., 2008; Riper et al., 2007; Rosenblum et al., 2005; Shakeshaft et al., 2002). One study included persons with serious mental illness (McDonnell et al., 2013) and one study included persons with mental illness but not with overt psychotic symptoms (Rosenblum et al., 2014).

Two of the studies reported baseline screening results for alcohol and/or drug use. Brown et al. (2010) reported baseline AUDIT scores of 20.8 – 21.8, and baseline DAST scores of 4.9 – 5.5; Drummond et al. (2009) reported baseline AUDIT score of 13.3 – 13.6. Shakeshaft et al. (2002) reported that 94.4% – 95.1% of their study population attained an AUDIT score of 8 or greater. Total AUDIT scores of 8 or more (out of a possible score of 40) are recommended as indicators of hazardous and harmful alcohol use, as well as possible alcohol dependence (Babor et al., 2001). Total DAST scores of 6 or more (out of a possible score of 28) have been shown to provide excellent sensitivity for identifying patients with substance use disorders (Skinner, 1982).

One study did not report AUDIT or DAST screening results but did use a similar screening test, the Michigan Alcoholism Screening Test (MAST). McCrady et al. (1999) reported a baseline mean MAST score of 27.14, (a total of 6 or more, out of a maximum score of 22, on the MAST scale indicates hazardous drinking or alcohol dependence and further evaluation by a healthcare professional is recommended; Selzer, 1971).

The remaining studies did not report baseline screening results but specified inclusion criteria that required participants to meet certain diagnostic criteria for substance abuse. The following studies required participants to meet DSM-IV (or DSM-III-R) criteria for alcohol dependence: COMBINE (2006), LoCastro et al., COMBINE (2009), Project MATCH; DSM-IV criteria for current marijuana dependence: Carroll et al. (2006b); DSM-IV criteria for at least one substance dependence (other

²² One study (Shakeshaft et al., 2002) included 17-year-olds, one study (Riper et al., 2007) limited participants to between the ages of 18 and 65 years, and one study (Carroll et al., 2006b) limited participants to young adults between the ages of 18 and 25 years.

than nicotine): Greenfield et al. (2007); DSM-IV criteria for substance use disorder: Morgenstern et al. (2001).

In Copeland et al. (2001), participants were not required to meet DSM-IV criteria for cannabis abuse/dependence but must have expressed a desire to cease cannabis use. Almost all participants (96.4%) received a current DSM-IV cannabis dependence diagnosis, while 100% were dependent according to the Severity of Dependence Scale (SDS).

McDonnell et al. (2013) required participants to meet the Mini International Neuropsychiatric Interview criteria for methamphetamine, amphetamine, or cocaine dependence while Riper et al. (2007) required participants to have an alcohol consumption that exceeded the limit specified by the pertinent Dutch guideline for low-risk drinking.

Rosenblum et al. (2005) required the reporting of past or current use of drugs or alcohol and current concerns about substance abuse. Inclusion criteria for Rosenblum et al. (2014) included a history of substance misuse, for Carroll et al. (2006a), it included seeking outpatient treatment for any substance use problem, and for Campbell et al. (2014), it included the use of illicit substances.

In summary, all participants in all reviewed studies met some form of criteria for problematic substances; although the participants in Brown et al. (2010) did not reach criteria for problematic drug use according to their mean DAST score at baseline, participants in this study did reach criteria for alcohol use so the study was included in the review.

4.4.2 Intervention

The studies included a variety of treatment interventions. These included adjunctive treatments added to treatment as usual (e.g., internet-delivered treatment, reinforcement, contingency management), brief motivational therapy, information advice giving, contingency management, motivation/skills building, combining pharmacotherapy and behavioural intervention, cognitive behavioural interventions, stepped care intervention, women's recovery group, counselling, mixed-gender-group drug counselling, 12 step facilitation, cognitive behavioural coping skills, motivational enhancement therapy, alcohol behavioural couples therapy, Alcoholics Anonymous, relapse prevention, reinforcement, web-based self-help intervention, and brief intervention. Most studies involved a comparison of various treatment interventions (e.g., treatment as usual plus contingency management for stimulant abstinence versus treatment as usual plus reinforcement for study participation; McDonnell et al., 2013). One treatment had a delayed-treatment control group 24 weeks (Copeland et al., 2001) or a wait-list control group (Rosenblum et al., 2014). Other studies included a control group of minimal intervention (e.g., information or advice) (see Brown et al., 2010; Drummond et al., 2009).

4.4.3 Duration of interventions

The duration of treatment intervention in the studies ranged from one treatment session to weekly individual and group sessions for up to 3 months. Specifically, the brief interventions ranged from a one-off treatment session (e.g., Brown et al., 2010), one-off treatment session plus self-help book, or six 1-hour treatment sessions (Copeland et al., 2001) through to five 40-50-minute individual sessions (Drummond et al., 2009). The more in-depth treatments included two face-to-face group or individual sessions per week for 12 weeks (Campbell et al., 2014), outpatient counselling from 3-8

weeks (Rosenblum et al., 2014), weekly group meetings for variable number of sessions (Carroll et al., 2006), 16 weeks of one of nine combinations of behavioural and/or medical-treatment (COMBINE, 2006; LoCastro et al. COMBINE, 2009), once a week for 12 weeks group therapy (Greenfield et al., 2007), once a week individual treatment therapy or four sessions spread over 12 weeks (MATCH, 1993-2001), weekly 90-minute sessions for 15 weeks, weekly individual and group treatment for 3 months (McDonell et al., 2013), weekly individual sessions for 12 weeks, 9 to 30 hours of group therapy a week for 3 months (Morgenstern et al., 2001), a 6-week self-help course (Riper et al., 2007), 3 group sessions per week for 4 weeks and 3 group sessions per week for 12 weeks (Rosenblum et al., 2005), six 45 minute weekly sessions or a total of 90 minutes of face-to-face counselling within 6 weeks (Shakeshaft et al., 2002).

4.4.4 Countries in trials which were conducted

The reviewed studies were conducted in a number of countries, including Australia (Copeland et al., 2001, Shakeshaft et al., 2002), Canada (Brown et al., 2010), the Netherlands (Riper et al., 2007), United Kingdom (Drummond et al., 2009), and the USA (Campbell et al., 2014, Carroll et al., 2006a, 2006b; COMBINE Study, 2006; Greenfield et al., 2007; LoCastro et al. COMBINE, 2009; McCrady et al., 1999; McDonell et al., 2013; Morgenstern et al., 2001; Project MATCH, 1993; Rosenblum et al., 2005, 2014).

4.3.5 Outcomes

The majority of studies measured primary outcomes about substance use (i.e., abstinence, days of use, severity of use, hazardous use, amount of use (Brown et al., 2010; Campbell et al., 2014; Carroll et al., 2006a, 2006b; COMBINE, 2006; Copeland et al., 2001; Drummond et al., 2009; Greenfield et al., 2007; LoCastro et al. COMBINE, 2009; McCrady et al., 1999; McDonell et al., 2013; Morgenstern et al., 2001, 2003; Project MATCH; Riper et al., 2007; Rosenblum et al., 2005, 2014; Shakeshaft et al., 2002). Some studies also measured outcomes about consequential (secondary) factors of harmful substance use, but there was significant heterogeneity regarding the outcomes measured in each study (Carroll et al., 2006b: ASI severity measures; COMBINE, 2006; LoCastro et al. COMBINE, 2009: global severity, perceived stress, employment, physical and mental health, social and environmental quality of life; Copeland et al., 2001: cannabis-related problems and psychological stress; Drummond et al., 2009: alcohol-related problems, physical and mental health; McCrady et al., 1999: drinking-related consequences; Morgenstern et al., 2001, 2003: drug-related consequences; Rosenblum et al., 2014: quality of life; Shakeshaft et al., 2002: alcohol-related problems). A few of the studies also measured possible factors that may impact on treatment outcomes (Campbell et al., 2014: abstinence at baseline; Project MATCH: psychiatric severity; Morgenstern et al., 2001: therapeutic alliance and treatment attendance; Rosenblum et al., 2005: substance abuse severity at baseline).

4.5 Comparison of the systematic review papers with the results from the evaluation of the Bridge Programme

To answer the question of how effective the Bridge Programme is in comparison to other treatment programmes, we compared treatment outcomes in the published studies identified in the systematic review to treatment outcomes in the Bridge Programme.

We compared the following outcomes:

(1) Primary outcomes for substance use behaviour:

- Substance use for alcohol, drugs and primary substance (either alcohol or drug)
- Severity of use for alcohol and drugs

(2) Secondary (consequential) outcomes

(3) Predictive or mediating factors that impact on treatment outcomes

Across all 17 studies selected for the review, a wide variety of treatment outcomes were measured and results were reported in various ways. In a large number of cases, the actual data was not reported (e.g., the authors of the study reported a significant reduction on key outcomes but the actual numbers or raw data were not reported in the article). Where actual data has been reported, we included it in the tables below for direct comparison with data from the current evaluation. In a large number of cases, analyses across time (i.e., from baseline to end of treatment and follow-up) were not made in the reviewed studies and statistical differences were not reported. Where analysis across time and statistical differences have been reported, this has been noted.

Given the heterogeneity of outcomes measured, and the wide variability in duration of studies, intensity of treatment, treatment type, and how the results were reported, we compared the Bridge Programme outcome data to the treatment outcome data in review studies by comparing the range (across treatment conditions) of the outcome means from the lowest to highest mean range in any given study.

4.5.1 Primary outcomes – substance use behaviours

(i) Substance use - alcohol

Results from the evaluation of the Bridge Programme (Table 4.1) showed a significant²³ increase in the mean percent days abstinent (or reduction of alcohol use) at end of the treatment (for those participants who completed 28 or more days of intensive residential treatment) (from 64.5% to 99% mean days abstinent). The increase in mean percent of days abstinent decreased slightly but significantly from end of treatment to follow-up (from 99.0% to 90.4% mean percent days abstinent). However, the use of alcohol at the 3-month follow-up was still significantly less than that at baseline.

Five published studies (Table 4.1) reported the use of alcohol at three distinct time points (baseline, end of treatment and at follow-up) in a similar manner to that of the Bridge Programme evaluation. Follow-up periods in the reviewed studies varied from 3- to 15-months post-treatment. COMBINE (2006), LoCastro et al. COMBINE, 2009), Project MATCH, and McDonell et al. (2013) all reported an increase in the number of days abstinent (hence a reduction in use) at the end of treatment, which appears to be maintained at some level to follow-up. Greenfield et al. (2007) found some increase in the number of days abstinent after treatment, however, the pattern was not as marked as that of the other four studies.

The remaining seven published studies reported partial data regarding the use of alcohol (days of use or percent days abstinent for either baseline, end of treatment or follow-up time-points (Brown

²³ Significance determined by 95% confidence intervals for days of use.

et al., 2010; Campbell et al., 2014; Drummond et al., 2009; McCrady et al., 1999; Rosenblum et al., 2005, 2014; Shakeshaft et al., 2002); data from these studies show a similar trend of reduction of alcohol use after treatment intervention. Five of the reviewed studies did not include any data relating to the use of alcohol (Carroll et al., 2006a, 2006b, Copeland et al., 2001, Morgenstern et al., 2001, 2003, Riper et al., 2007).

Overall, the reviewed studies included a wide variety of populations, treatment programmes, and follow-up periods. Across all of these variables, there was a consistent trend similar to that found in the Bridge Programme evaluation: treatment reduced alcohol use and this reduction in use was maintained to some extent over a follow-up period.

Table 4.1. Alcohol use: Percent days abstinent [(%) (sd^a)] and days of use [mean (sd^a)]

		Baseline	End of treatment	Follow-up
	New Zealand Salvation Army Bridge Programme – Clients who graduated or completed more than 28 days Stage 2 treatment	64.5% 9.95 (SE = 0.76) days of use per past 28 days	99.0% * 0.28 (SE = 0.11) days of use per past 28 days	90.4% *, ** 2.7 (SE = 0.57) days of use per past 28 days Follow-up 3 months post-treatment
1.	Brown et al. (2010)	67.5% - 68.5% 56.7 (54.8) – 58.4 (55.8) days of use per past 180 days		Follow-up 6 & 12 months post treatment
2.	Campbell et al. (2014)			Higher percent abstinence at baseline predict higher abstinence rates at follow-up Follow-up 3 & 6 months post treatment.
5.	COMBINE (2006) (Anton et al.) Drug therapy	22.9% (24.7) – 29.8% (24.7)	73.8% (26.0) – 80.5% (26.0)	59.4% (32.4) – 68.1% (31.5)
	Drug therapy + CBI	23.7% (24.8) – 26.8% (24.7)	75.9% (26.0) – 79.8% (25.9)	64.2% (31.5) – 68.6% (31.7)
	CBI only	23.5% (25.35%)	66.6% (27.1)	60.9% (32.6) Follow-up 1-year post treatment
6.	COMBINE (2009) (LoCastro et al.)	25.3%	74.6%	67.8% (6 mth) 62.7% (12 mth) Follow-up at 6 & 12 months post treatment
8.	Drummond et al. (2009)	36.6% (3.4) – 37.9% (3.8)		49% – 48.4%^b

		Baseline	End of treatment	Follow-up
				Follow-up 6 months post treatment
9.	Greenfield et al. (2007)	82.7% - 83% 10.2 (1.8) – 10.4 (1.4) drinking days in past 60 days	83% - 86% 8.4 – 10 drinking days in past 60 Treatment = 12 weeks	80.1% - 86.7% 7.98 – 11.95 drinking days in past 60 days Follow-up 6 months post treatment
10.	Project MATCH	20% - 30%	80% - 90%	80% - 90% Follow-up 15 months post treatment
11.	McCrary et al. (1999)	33.4% (24.3) – 46.3% (30)		72.8% (33.6) – 82.6% (24.5) Follow-up 6 months post treatment
12.	McDonell et al. (2013)	78% - 81.7% 5.5 – 6.6 days used in past 30 days	85.7% - 94% 1.8 (4.8) – 4.3 (8.4) days used in past 30 days	86% - 88% 3.6 (7.92) – 4.2 (7.9) days used in past 30 days Follow-up 3 months post treatment
15.	Rosenblum et al. (2005)	52.3% - 62.7% 11.2 (14.6) – 14.3 (17.4) days used in past 30 days	Treatment length = 0 weeks for control & 16 weeks for experimental group	82.7% - 73%* 5.2 (8.8) – 8.1 (10.6) days used in past 30 days Significant decline in all substance-use measure except for heavy alcohol use among control participants. Follow-up 5 months from beginning of treatment
16.	Rosenblum et al. (2014)	85.0% - 78.3% 4.5 (8.2) – 6.5 (9.6) days used in past 30 days		79.7% - 89.7% 3.1 (6.4) – 6.1 (8.8) days used in past 30 days Follow-up 3-6 months post-treatment
17.	Shakeshaft et al.			Reduction in

		Baseline	End of treatment	Follow-up
	(2002)			proportion of clients 'at risk' for measures of weekly consumption, binge consumption, problems and AUDIT score. Follow-up 6 months post treatment

* significant difference from baseline

** significant difference from end of treatment

^a unless otherwise stated

^b follow-up means adjusted to account for variability in corresponding baselines scores

(ii) Substance use – drugs

Comparisons are presented for cannabis, amphetamine, and synthetics use as these were the three most common drugs used by the participants in the current evaluation of the Bridge Programme. In a similar pattern to that of alcohol use, the results for the Bridge Programme evaluation (Table 4.2) showed that, for participants who used cannabis, amphetamines, or synthetics, there was a significant increase in percent days abstinent (i.e., a reduction of drug use) from baseline to end of treatment (from 70.5% - 85.1% to 99.6% - 100% days abstinent) and the use of drugs did not significantly change between end of treatment and the 3-month follow-up period (94.6%-100% days of abstinence at the 3-month follow-up point).

It is difficult to compare the reduction of drug use in the Bridge Programme evaluation to trends found in the reviewed studies as results from the reviewed papers were mixed or not reported. One published study (McDonnell et al., 2013) reported drug use at all three time points. Five articles reported some data on drug use at some of the time points. Eleven articles did not report any data relating to drug use over baseline, end of treatment, and follow-up time periods.

Of the reviewed studies, some showed reductions in use after treatment, but some studies were inconclusive. For example, the McDonnell et al. (2013) and Rosenblum et al. (2014) data suggests little change in drug use from baseline to follow-up. This may be attributed to the fact that some studies separate different classes of drugs whereas other studies evaluate 'drugs' as one single group. In addition, a number of the studies in the review (11) did not measure or report changes in drug use. Four of the reviewed studies did not examine alcohol and drug use separately, including alcohol and drugs together as 'substance' use; results from these articles are presented in Table 4.2 below.

Table 4.2. Drug use: Percent days abstinent [(%) (sd^a)] and days of use [mean (sd^a)]

		Baseline	End of treatment	Follow-up
	New Zealand Salvation Army Bridge Programme – Clients who	<i>Cannabis:</i> 70.5% 8.27 (SE = 1.07) days	<i>Cannabis:</i> 99.8% * 0.05 (SE = 0.03) days of	<i>Cannabis:</i> 94.6% * 1.51 (SE = 0.75) days

		Baseline	End of treatment	Follow-up
	graduated or completed more than 28 days Stage 2 treatment	of use in past 28 days	use in past 28 days	of use in past 28 days
		<i>Amphetamines:</i> 75.4% 6.88 (SE = 1.27) days of use in past 28 days	<i>Amphetamines:</i> 99.6% * 0.11 (SE = 0.06) days of use in past 28 days	<i>Amphetamines:</i> 98.4% * 0.44 (SE = 0.24) days of use in past 28 days
		<i>Synthetics:</i> 85.1% 4.18 (SE 2.17) days of use in past 28 days	<i>Synthetics:</i> 100% 0 days of use in past 28 days	<i>Synthetics:</i> 100% 0 days of use in past 28 days
1.	Brown et al. (2010)	92.1% - 93.2% 12.3 (29.5) - 14.3 (34.1) days of use per past 180 days		Follow-up 6 & 12 months post treatment
3.	Carroll et al. (2006a)	67.3%^a 9.8 (9.8) ^a days of use of primary substance of concern per past 30 days		For the group as a whole, there were significant reductions in frequency of substance use across time. Follow-up 28 days & 84 days post randomisation
4.	Carroll et al. (2006b)		<i>Marijuana only –</i> Participants did not change their frequency of use (self-report) between end of treatment and 6-month follow-up. Follow-up 3 & 6 months post treatment	
7.	Copeland et al. (2001)	<i>Cannabis only –</i> Virtually all participants had used daily in the month prior to assessment		<i>Cannabis only –</i> 37.0% (35.5) Follow-up 24 weeks post treatment
12.	McDonnell et al. (2013)	<i>Cannabis:</i> 88% - 90% 3 - 3.6 days used in past 30 days	<i>Cannabis, amphetamines, opioids, cocaine & other drugs combined:</i> 84% - 97%	<i>Cannabis, amphetamines, opioids, cocaine & other drugs combined:</i> 87.7% - 94%

		Baseline	End of treatment	Follow-up
		<i>Amphetamines:</i> 94% - 97.7% 0.7 – 1.8 days used in past 30 days	0.9 (2.4 – 4.7 (7.7) days used in past 30 days	1.8 (4.9) – 3.7 (7.2) days used in past 30 days Follow-up 3 months post treatment
16.	Rosenblum et al. (2014)	<i>Any drugs:</i> 74.3% - 77% 6.9 (9.3) – 7.7 (10.4) days used in past 30 days		<i>Any drugs:</i> 73.3% - 81.7% 5.5 (9.2) – 8.0 (10.6) days used in past 30 days Follow-up 3-6 months post-treatment

* significant difference from baseline

** significant difference from end of treatment

^a unless otherwise stated

(iii) Substance use – primary substance of use

Four of the reviewed studies reported primary substance use, rather than alcohol and drug use separately. Primary substance use may have been alcohol or drugs (and either drugs in general or a specific class of drug); reported results from these studies are shown below in Table 4.3. Trends are similar to that found for alcohol use with a reduction in use after treatment that is maintained to some degree at follow-up. We could not directly compare the Bridge Programme evaluation data to data from studies in the review as many of our participants had more than one primary substance use or more than one primary substance identified as a problem. Furthermore, although in one of the measures we used (the ADOM), participants were asked to identify their ‘primary’ substance of use, on viewing their responses, it appeared that many had misunderstood the question or it contradicted their other data related to primary substance of concern. We have reported the findings from the reviewed studies here, however, to show the overall trend of treatment outcome related to substance use.

Carroll et al. (2006a), Morgenstern et al. (2001, 2003), and Rosenblum et al. (2005) all reported a significant increase in mean percent days abstinent (a significant reduction in use) at follow-up compared to baseline. In addition, Morgenstern et al. (2001) and Morgenstern et al. (2003) reported a significant decrease in mean percent days abstinent (an increase in use) at the 6-month follow-up compared to the end of treatment, however this was still a significant increase in the days abstinent (decrease in use) compared to the baseline measures taken before treatment began.

Results reported by Greenfield et al. (2007) are more ambiguous, with a trend towards a reduction in use at the end of treatment. It appears, however, that at the 6-month follow-up, substance use had returned to similar levels to that measured at baseline.

Table 4.3. Primary substance use: Percent days abstinent [(%) (sd)] and days of use [mean (sd)]

		Baseline	End of treatment	Follow-up
4.	Carroll et al. (2006a)	67.3%^a 9.8 (9.8) ^a days of use of primary substance of concern per past 30 days		For the group as a whole, there were significant reductions in frequency of substance use across time. Follow-up 28 days & 84 days post randomisation
9.	Greenfield et al. (2007)	77.2% - 80.2%^a 13.7 (1.8) – 11.9 (2.1) days of any substance use in past 60 days	83.5% - 84.3% 9.9 – 9.4 days of any substance use in past 60 days Treatment = 12 weeks	75.8% - 80.5% 14.5 – 11.7 days of any substance use in past 60 days Follow-up 6-months post treatment
13.	Morgenstern et al. (2001) Morgenstern et al. (2003)	55.1% (31)^a	89.9% (22.1)[*] Primary alcohol users only = 84.7% (25.9)	84.6% (26.9)^{a, *, **} Follow-up 6-months post treatment
15.	Rosenblum et al. (2005)	53.3% - 53.7%^a 13.9 (11.8) – 14.0 (12.2) days any substance used in past 30 days	Treatment length = 0 weeks for control & 16 weeks for experimental group	65.7% - 72.3%[*] 10.3 (11.4) – 8.3 (10.8) days used in past 30 days Follow-up 5 months from beginning of treatment

^a primary substance use (either alcohol or drug)

^{*} significant difference from baseline

^{**} significant difference from end of treatment

(iv) Severity of use – alcohol

Participants in the Bridge Programme evaluation showed a significant decrease in the severity of alcohol use (as measured by an improvement in the Addiction Severity Index composite alcohol score, ASI) at the end of treatment and at follow-up compared to baseline²⁴. The non-adjusted means for users of alcohol only, users of alcohol and a single drug, and users of alcohol and multiple drugs at baseline, end of treatment, and follow-up are presented in Table 4.4.

²⁴ Statistical modelling was used to evaluate the data hence statistical differences were based on adjusted means. Raw means (Table 4.4) showed the same trends as adjusted means.

Five of the reviewed articles did not report data on the severity of alcohol use. Of the remaining 12 reviewed articles, a variety of measures of severity were used. Brown et al. (2010) reported a significant reduction in the percentage of days of risky drinking (an indicator of severity) from baseline to the 6-month follow-up, which was maintained at the 12-month follow-up, indicating that their programme facilitated a reduction in severity. Similarly, COMBINE 2009 (LoCastro et al.) reported a reduction in the percentage of heavy drinking days (an indicator of severity) from baseline to follow-up. McCrady et al. (1999) also reported the percentage of heavy drinking days and showed a significant decrease from baseline to a 6-month follow-up. Rosenblum et al. (2005) reported a decrease in heavy alcohol use days following treatment and reported that the experimental intervention was more effective for participants with a higher baseline substance abuse severity (as measured by days of heavy drinking). Drummond et al. (2009) also reported a decrease in the severity of alcohol related dependence (measured by the Severity of Alcohol Dependence Questionnaire) from baseline to follow-up. Greenfield et al. (2007) reported an improvement in ASI composite (recent) alcohol scores from baseline to follow-up. Project MATCH reported a decrease in drinks per drinking day (an indicator of severity of use) from baseline to end of treatment and follow-up. Using the Addiction Severity Index (ASI), Carroll et al. (2006a) reported reduction in severity of alcohol use at follow-up, however, Carroll et al. (2006b) reported no significant change in the severity of alcohol use at follow-up. Riper et al. (2007) reported a post-treatment increase in the percentage of people (from a baseline of 0%) who reduced the severity of their drinking sufficiently to fall into the 'low-risk' limits of Dutch guidelines for drinking.

Overall, the reviewed articles indicate a trend towards treatment for alcohol use resulting in reductions of the severity of alcohol use. This conclusion is limited, however, by the fact that the measurement of severity was not standardised across studies.

Table 4.4. Severity of use [mean (sd)] – alcohol

		Baseline	End of treatment	Follow-up
	New Zealand Salvation Army Bridge Programme - Clients who graduated or completed more than 28 days Stage 2 treatment	<i>Users of only alcohol:</i> ASI: 0.51 (0.27)	<i>Users of only alcohol:</i> ASI: 0.16 (0.12)	<i>Users of only alcohol:</i> ASI: 0.15 (0.19)
		<i>Users of alcohol & single drug:</i> ASI: 0.40 (0.25)	<i>Users of alcohol & single drug:</i> ASI: 0.11 (0.09)	<i>Users of alcohol & single drug:</i> ASI: 0.16 (0.16)
		<i>Users of alcohol and multiple drugs:</i> ASI 0.27 (0.25)	<i>Users of alcohol and multiple drugs:</i> ASI: 0.11 (0.11)	<i>Users of alcohol and multiple drugs:</i> ASI: 0.12 (0.12)
1.	Brown et al. (2010)	Percent days of risky drinking: 47.7% (31.4)	Percent days of risky drinking: 39.0%* (30.7)	Percent days of risky drinking: 36.9 %* (32.6) Follow-up 3 & 6 months post treatment

		Baseline	End of treatment	Follow-up
3.	Carroll et al. (2006a)	ASI: 0.21 (0.23)	<p>Reported significant reductions in intensity of problems in all seven areas measured by the ASI (medical, legal, employment, alcohol, drug, family & psychological) for both 28-day and 84-day follow-up.</p> <p>Follow-up 28 days & 84 days post randomisation</p>	
4.	Carroll et al. (2006b)	ASI: data not reported	<p>Reported significant reductions in intensity of problems for marijuana, medical, legal, family & psychological composite scores <u>but not for</u> employment, alcohol or drug use composite scores.</p> <p>Follow-up 3 & 6 months post treatment</p>	
6.	COMBINE 2009 (LoCastro et al.)	Percent heavy drinking days: 65.6%	Percent heavy drinking days: 16%	<p>Percent heavy drinking days - week 26 follow-up: 21.7%</p> <p>Percent heavy drinking days - week 52 follow-up: 26.4%</p> <p>Follow-up 6 & 12 months post treatment</p>
8.	Drummond et al. (2009)	Severity of Alcohol Dependence Questionnaire: 8.2 (0.9) – 8.8 (1.2)		<p>Severity of Alcohol Dependence Questionnaire: 5.5 (0.7) – 6.1 (0.6)</p> <p>Follow-up 6 months post treatment</p>
9.	Greenfield et al. (2007)	ASI: 0.44 (0.11) – 0.45 (0.05)	ASI: 0.30 – 0.31	<p>ASI: 0.22 – 0.41</p> <p>Follow-up 6 months post treatment</p>
10.	Project MATCH	Drinks per drinking day: 11 – 20 drinks per drinking day	Drinks per drinking day: 1 – 3 drinks per drinking day	<p>Drinks per drinking day: 1.5 – 3 drinks per drinking day</p> <p>Follow-up 15 months post treatment</p>
11.	McCrary et al. (1999)	Percent heavy drinking days: 45.2%		<p>Percent heavy drinking days: 6.1% - 17.1%</p> <p>Follow-up 6 months post treatment</p>
14.	Riper et al. (2007)	Percent drinking within the limits of Dutch guidelines for low-risk drinking: 0%		Percent drinking within the limits of Dutch guidelines for low-risk drinking:

		Baseline	End of treatment	Follow-up
				5.4% (control group) - 17.2% Follow-up 6 months post treatment
15.	Rosenblum et al. (2005)	Heavy alcohol use: 3.3 (8.0) – 3.9 (8.9) days per past 30 days		Heavy alcohol use: 4.2 (9.3) - 1.6* (5.4) days per past 30 days Experimental intervention was more effective for participants with higher baseline substance abuse severity (measured by days of heavy drinking) Follow-up 5 months post treatment
17.	Shakeshaft et al. (2002)			Reduction in proportion of clients 'at risk' for measures of weekly consumption, binge consumption, problems and AUDIT score. Follow-up 6 months post treatment

* significant difference from baseline

** significant difference from end of treatment

(v) Severity of use – drugs

The severity of drug use followed a similar pattern to that of the severity of alcohol use. Results from the evaluation of the Bridge Programme showed a significant²⁵ decrease in the severity of participants' drug use (measured by an improvement in ASI composite drug score) at the end of treatment and at follow-up, compared to baseline. The means (non-adjusted) for users of a single drug only (no alcohol), users of multiple drugs (no alcohol), users of a single drug and alcohol, and users of multiple drugs and alcohol at baseline, end of treatment, and follow-up are presented in Table 4.5.

Thirteen of the reviewed articles did not report data relating to the severity of drug use. The four articles that did report relevant data showed a similar pattern of a reduction of severity of drug use

²⁵ Statistical modelling was used to evaluate the data hence statistical differences were based on adjusted means. Raw means (Table 4.5) showed the same trends as adjusted means.

following treatment. Copeland et al. (2001) reported a significant decrease in the Severity of Dependence (SDS) score for users of cannabis at follow-up compared to baseline. Carroll et al. (2006a) reported a reduction in ASI drug severity score from baseline to follow-up; however, Carroll et al. (2006b) reported significant reductions in intensity of problems (ASI composite score) for marijuana, but not for ASI drug use composite scores.

Table 4.5. Severity of use [mean (sd)] – drugs

		Baseline	End of treatment	Follow-up
	New Zealand Salvation Army Bridge Programme - Clients who graduated or completed more than 28 days Stage 2 treatment	<i>Users of single drug only (no alcohol):</i> ASI: 0.18 (0.10)	<i>Users of single drug only (no alcohol):</i> ASI: 0.05 (0.04)	<i>Users of single drug only (no alcohol):</i> ASI: 0.05 (0.06)
		<i>Users of multiple drugs (no alcohol):</i> ASI: 0.23 (0.11)	<i>Users of multiple drugs (no alcohol):</i> ASI: 0.11 (0.17)	<i>Users of multiple drugs (no alcohol):</i> ASI: 0.09 (0.08)
		<i>Users of single drug & alcohol:</i> ASI: 0.13 (0.11)	<i>Users of single drug & alcohol:</i> ASI: 0.04 (0.04)	<i>Users of single drug & alcohol:</i> ASI: 0.03 (0.03)
		<i>Users of multiple drugs & alcohol:</i> ASI: 0.20 (0.10)	<i>Users of multiple drugs & alcohol:</i> ASI: 0.07 (0.05)	<i>Users of multiple drugs & alcohol:</i> ASI: 0.04 (0.03)
3.	Carroll et al. (2006a)	ASI: 0.11 (0.12)	Reported significant reductions in intensity of problems in all seven areas measured by the ASI (medical, legal, employment, alcohol, drug , family & psychological) for both 28-day and 84-day follow-up.	
4.	Carroll et al. (2006b)	<i>Marijuana only -</i>		Reported significant reductions in intensity of problems for marijuana , medical, legal, family & psychological composite scores <u>but not for</u> employment, alcohol or drug use composite scores. Follow-up 3 & 6 months post treatment
7.	Copeland et al. (2001)	<i>Cannabis only:</i> Severity of Dependence score (SDS) 9.2 (3.2) - 9.8 (2.9)		<i>Cannabis only:</i> Severity of Dependence score (SDS) 5.8 (4.3) – 9.2 (3.2)*, ^a Follow-up 24 weeks

		Baseline	End of treatment	Follow-up
				post treatment
13.	Morgenstern et al. (2001) Morgenstern et al. (2003)	No comparable data		

* significant difference from baseline

** significant difference from end of treatment

^a scores have been adjusted for baseline SDS scores

4.5.2 Secondary outcomes – consequential factors of the substance use behaviour

The evaluation of the Bridge Programme showed that participants improved in nearly all measured areas of secondary (consequential) treatment outcomes at end of treatment and follow-up compared to baseline. The only exception to this was that vocational status increased in severity at the end of the treatment programme, which was likely due to the in-house treatment programme necessarily preventing clients from working during their period of treatment. Participants' vocational status at follow-up improved compared to baseline. Mean results for all measures are presented in Table 4.6.

Overall negative consequences for alcohol users (as measured by the Drinking Inventory of Consequences, DRInC) and drug users (as measured by the Inventory of Drug Related Consequences, InDUC) decreased significantly at the end of treatment and at follow-up compared to baseline.

Social functioning of participants improved at end of treatment and at follow-up compared to baseline with a significant decrease in negative interpersonal consequences of alcohol (as measured by the DrInC, alcohol, interpersonal score) and drug use (as measured by the InDuc, drug, interpersonal score) and a significant decrease in the severity of family/social status (as measured by the ASI family, recent, score).

Physical health improved at end of treatment and at follow-up compared to baseline with a significant decrease in the severity of medical status (as measured by ASI medical composite score) and a significant improvement in physical health (as measured by WHO QoL BREF).

Mental health improved at end of treatment and at follow-up compared to baseline with a significant decrease in the severity of psychiatric status (as measured by ASI psychiatric composite score).

Perceived quality of life improved at end of treatment and at follow-up compared to baseline with a significant increase in perceived quality of life (as measured by the WHO QoL BREF).

Vocational status improved significantly at the 3-month follow-up compared to baseline (as measured by the ASI composite vocational score). This followed a significant increase in severity of vocational status at the end of treatment. As The Salvation Army Bridge Programme is a residential (live-in) programme, participants were unable to work during the treatment period and hence their vocational status suffered. This, however, was short-term and at follow-up, vocational status had improved to greater than that seen at baseline. This was reflected in the hours participants reported working for both pay and not for pay, hours spent on these activities reduced at end of treatment

compared to baseline, however, at follow-up, participants reported working more hours than at baseline.

Ten of the reviewed articles provided some data that was comparable to the data collected on secondary outcomes in the Bridge Programme evaluation, although a wide variety of measures were used. Mixed results are reported by the reviewed papers. In a similar trend to that found in the current evaluation, Carroll et al. (2006b) reported an improvement in ASI severity scores at follow-up for family, medical (physical health) and psychological (mental health) outcomes, but not for employment (vocational) status.

Brown et al. (2010) did not measure overall secondary consequences directly but did report a significant reduction in the number of alcohol problems (participant self-reported) from baseline to the 6-month follow-up. Using the Inventory of Drug Related Consequences (InDUC), Morgenstern et al. (2001) found a significant reduction in overall negative consequences of drug use. Change scores from baseline to follow-up appear slightly smaller than that found for the current evaluation of the Bridge Programme; however, the follow-up period in this study was longer (i.e., up to 6 months).

Copeland et al. (2001) report data that suggests a reduction in proportion of cannabis-related problems (e.g., use in inappropriate situations, interactions with other people, psychological and motivational concerns, physical health, money, and loss of interest in activities) at follow-up compared to baseline, with no change in psychological stress found.

Drummond et al. (2009) reported a reduction (from 4.7 – 5.6 to 2.9 to 3.2, see Table 4.6) in alcohol related problems as measured by the Alcohol Problems Questionnaire (APQ) with little or no change in quality of life (physical or mental health) as measured by the SF-12. Drummond et al. also reported a significant increase in motivation to change, reflecting the motivational intervention treatment approach that they employed.

COMBINE 2009 (LoCastro et al.) reported that all of the secondary outcomes that they measured improved significantly from baseline to the end of treatment. The post-treatment improvements were mostly stable across time to a 1-year follow-up. The only exceptions were for the percentage of days of paid work that returned to baseline level and physical health scores that fell to below baseline at the 1-year follow-up. Interestingly, COMBINE 2009 (LoCastro et al.) also reported that primary drinking outcomes (drinks per drinking day, percent days abstinent, and percent heavy drinking days) were significantly correlated with secondary outcomes. That is, a higher percentage of heavy drinking days, more drinks per drinking day, and a lower percentage of days abstinent, were related to lower quality of life measures and to more psychiatric symptoms and perceived stress.

Table 4.6. Secondary (consequential) outcomes [mean (sd)]

		Baseline	End of treatment	Follow-up
	New Zealand Salvation Army Bridge Programme	<i>Overall negative consequences - alcohol:</i> <i>Users of only alcohol:</i> DrInC: 71.59 (20.28)	<i>Overall negative consequences - alcohol:</i> <i>Users of only alcohol:</i> DrInC: 8.09 (17.58)	<i>Overall negative consequences - alcohol:</i> <i>Users of only alcohol:</i> DrInC: 8.76 (19.74)

		Baseline	End of treatment	Follow-up
		<i>Users of alcohol & single drug:</i> DrInC: 59.90 (39.67)	<i>Users of alcohol & single drug:</i> DrInC: 2.26 (5.22)	<i>Users of alcohol & single drug:</i> DrInC: 11.87 (18.94)
		<i>Users of alcohol and multiple drugs:</i> DrInC: 42.92 (34.66)	<i>Users of alcohol and multiple drugs:</i> DrInC: 11.29 (28.82)	<i>Users of alcohol and multiple drugs:</i> DrInC: 6.13 (13.71)
		<i>Overall negative consequences - drug:</i>	<i>Overall negative consequences - drug:</i>	<i>Overall negative consequences - drug:</i>
		<i>Users of single drug only (no alcohol):</i> InDUC: 55.09 (31.66)	<i>Users of single drug only (no alcohol):</i> InDUC: 7.56 (12.50)	<i>Users of single drug only (no alcohol):</i> InDUC: 6.30 (14.30)
		<i>Users of multiple drugs (no alcohol):</i> InDUC: 82.09 (28.41)	<i>Users of multiple drugs (no alcohol):</i> InDUC: 0 (0)	<i>Users of multiple drugs (no alcohol):</i> InDUC: --
		<i>Users of single drug & alcohol:</i> InDUC: 57.44 (37.74)	<i>Users of single drug & alcohol:</i> InDUC: 0.52 (1.59)	<i>Users of single drug & alcohol:</i> InDUC: 8.35 (18.05)
		<i>Users of multiple drugs & alcohol:</i> InDUC: 62.04 (29.96)	<i>Users of multiple drugs & alcohol:</i> InDUC: 15.13 (30.24)	<i>Users of multiple drugs & alcohol:</i> InDUC: 5.79 (11.18)
		<i>Social functioning:</i>	<i>Social functioning:</i>	<i>Social functioning:</i>
		DrInC (alcohol) Interpersonal: 14.81 (8.45)	DrInC (alcohol) Interpersonal: 1.73 (4.46)	DrInC (alcohol) Interpersonal: 1.66 (4.08)
		InDuc (drug) Interpersonal: 14.11 (8.59)	InDuc (drug) Interpersonal: 1.80 (4.73)	InDuc (drug) Interpersonal: 1.35 (2.88)
		ASI family: 0.25 (0.18)	ASI family: 0.16 (0.16)	ASI family: 0.11 (0.12)
		<i>Physical health:</i>	<i>Physical health:</i>	<i>Physical health:</i>
		ASI Medical: 0.29 (0.29)	ASI Medical: 0.24 (0.27)	ASI Medical: 0.20 (0.27)
		WHO QoL BREF Physical: 24.78 (4.97)	WHO QoL BREF Physical: 27.61 (4.83)	WHO QoL BREF Physical: 27.73 (4.76)
		<i>Mental health:</i>	<i>Mental health:</i>	<i>Mental health:</i>
		ASI Psychiatric: 0.31 (0.26)	ASI Psychiatric: 0.16 (0.18)	ASI Psychiatric: 0.15 (0.18)

		Baseline	End of treatment	Follow-up
		<i>Quality of life:</i> WHO QoL BREF Q1: 2.96 (1.05)	<i>Quality of life:</i> WHO QoL BREF Q1: 3.97 (0.68)	<i>Quality of life:</i> WHO QoL BREF Q1: 3.96 (0.80)
		<i>Vocational status:</i> ASI Employment: 0.67 (0.28) I PA Work for pay (hrs/wk): 14.47 (22.05) IPA Work not for pay(hrs/wk): 7.11 (16.62)	<i>Vocational status:</i> ASI Employment: 0.70 (0.25) IPA Work for pay (hrs/wk): 3.15 (13.07) IPA Work not for pay(hrs/wk): 4.50 (12.16)	<i>Vocational status:</i> ASI Employment: 0.60 (0.28) (note a significant decrease to baseline) IPA Work for pay (hrs/wk): 18.33 (39.89) IPA Work not for pay(hrs/wk): 10.60 (22.63)
		<i>Activity status:</i> IPA not work related (hrs/wk): 40.92 (60.14)	<i>Activity status:</i> IPA not work related (hrs/wk): 39.57 (49.35)	<i>Activity status:</i> IPA not work related (hrs/wk): 40.95 (55.05)
3.	Brown et al. (2010)	Alcohol-related problems: MMPI Mac score 26.0 – 26.1		Alcohol-related problems: MMPI Mac score 6 month follow-up: 26.1 – 27.3* 12 month follow-up MMPI Mac score 27.1 – 26.6
4.	Carroll et al. (2006b)			ASI: Reported significant reductions in intensity of problems for marijuana, medical, legal, family & psychological composite scores <u>but</u> <u>not for employment,</u> alcohol or drug use composite scores. Follow-up 3 & 6 months post treatment
5.	COMBINE (2006) (Anton et al.) Drug therapy	DrInC: 46.5 (20.2) – 52.1 (20.1)		

		Baseline	End of treatment	Follow-up
	Drug therapy + CBI	DrInC: 46.4 (20.1) – 46.5 (20.2)		
	CBI only	DrInC: 45.8 (20.3)		Follow-up 1 year post treatment
6.	COMBINE 2009 (LoCastro et al.)	<p>BSI – global severity: 60.34 (0.30)</p> <p>Perceived street scale (total): 5.79 (0.08)</p> <p>Percent days paid work: 87.65 (90.75)</p> <p>SF-12 physical health: 52.65 (0.24)</p> <p>SF-12 mental health: 41.45 (0.32)</p> <p>WHO QoL physical health: 69.99 (0.47)</p> <p>WHO QoL Psychological: 59.38 (0.52)</p> <p>WHO QoL Social: 56.88 (0.63)</p> <p>WHO QoL Environmental: 63.40 (0.55)</p>	<p>BSI – global severity: 52.41 (0.37)*</p> <p>Perceived street scale (total): 4.16 (0.10)*</p> <p>Percent days paid work: 91.93 (0.61)*</p> <p>SF-12 physical health: 53.61 (0.21)*</p> <p>SF-12 mental health: 49.44 (0.30)*</p> <p>WHO QoL physical health: --</p> <p>WHO QoL Psychological: --</p> <p>WHO QoL Social: --</p> <p>WHO QoL Environmental: --</p>	<p>BSI – global severity: 51.89 (0.41)*</p> <p>Perceived street scale (total): 4.32 (0.10)*</p> <p>Percent days paid work: 87.55 (0.79)</p> <p>SF-12 physical health: 51.88 (0.27)*, **</p> <p>SF-12 mental health: 48.01 (0.34)*, **</p> <p>WHO QoL physical health: 76.85 (0.54)*</p> <p>WHO QoL Psychological: 66.08 (0.61)*</p> <p>WHO QoL Social: 65.63 (0.68)*</p> <p>WHO QoL Environmental: 69.91 (0.58)*</p> <p>Follow up at 6 & 12 months. 1 year follow-up data reported here.</p>
7.	Copeland et al. (2001)	<p>Proportion of cannabis related problems: 42.2 (18.6) – 45.4 (16.3)</p> <p>Psychological stress (GSI score from SCL-9-R): 0.7</p>		<p>Proportion of cannabis related problems: 23.0 (16.8) – 39.1 (16.6)^a</p> <p>Psychological stress (GSI score from SCL-90R): 0.5 – 0.6^b (no change from baseline)</p> <p>Follow-up 24 weeks post treatment</p>

		Baseline	End of treatment	Follow-up
8.	Drummond et al. (2009)	<p>Alcohol Problems questionnaire: 4.7 (0.4) – 5.6 (0.6)</p> <p>Quality of life (SF-12) – Physical Health: 40.5 (1.0) – 40.6 (1.0)</p> <p>Quality of life (SF-12) – Mental Health: 45.6 (1.8) – 49.2 (1.4)</p> <p>Motivation to Change:</p>		<p>Alcohol Problems questionnaire: 2.9 (0.3) – 3.2 (0.3)^c</p> <p>Quality of life (SF-12) – Physical Health: 39.5 (0.6) – 39.7 (0.5)^c</p> <p>Quality of life (SF-12) – Mental Health: 49.9 (1.2) – 50.5 (1.4)^c</p> <p>Motivation to Change: intervention group scored significantly higher on the ‘action’ attribute</p> <p>Follow-up 6-month post treatment</p>
10.	Project MATCH	ASI Psychiatric: 0.19 (0.19) – 0.23 (0.21)		<p>ASI Psychiatric: not taken at follow-up, no comparison can be made</p> <p>Follow-up 15 months post-treatment</p>
11.	McCrary et al. (1999)	CIDI-SAM (symptoms): 24.02 (8.32)		<p>65.7% of subjects were classified as improved on a composite measure of drinking and drinking-related consequences</p> <p>Marital Happiness scores did not differ across the 6 months.</p> <p>Follow-up 6-months post treatment</p>
13.	Morgenstern et al. (2001) Morgenstern et al. (2003)	<p>ASI Psychiatric: 0.21 (0.22)</p> <p>InDUC: 56.4 (13.9)</p>	InDUC: 13.9 (22)*	<p>InDUC: 15.1 (26.5)*</p> <p>Follow-up 3 & 6 months post treatment</p>

		Baseline	End of treatment	Follow-up
16.	Rosenblum et al. (2014)	RQOL (quality of life) total: not taken at baseline, no comparison can be made.		RQOL (quality of life) total: 2.0 (1.80 – 2.7 (1.8) Follow-up 3-6 months post treatment
17.	Shakeshaft et al. (2002)	Alcohol Problems Questionnaire: 8.0 – 8.8		Alcohol Problems Questionnaire: 3.7 – 5.2* Follow-up 6 months post treatment

* significant difference from baseline

** significant difference from end of treatment

^a follow-up means adjusted to account for baseline problem levels

^b follow-up means adjusted for baseline levels of distress

^c follow-up means adjusted to account for variability in corresponding baseline scores

4.6 Discussion

We identified a total of 17 experimental studies to compare treatment outcomes of the Bridge Programme Model of Treatment to treatment outcomes of other national or international treatment programmes.^o Due to differing methodologies, no study was specifically designed in a way that we could directly compare all aspects of outcome with the current Salvation Army evaluation. However, where possible, comparable data was extracted and compared to the results from the current evaluation of The Salvation Army's Bridge Programme.

Overall, The Salvation Army Bridge Programme Model of Treatment compares favourably to international programmes. Trends in treatment outcome improvement are similar to trends in the international studies, and the strength of the trend in many comparisons appears to be greater for the measured outcomes of Salvation Army Bridge Programme evaluation.

In summary, both the reviewed articles and the evaluation of the Bridge Programme suggest that treatment (in its variety of forms as provided by reviewed studies and by The Salvation Army Bridge Programme) reduced both alcohol and drug use and these reductions in use are maintained to some extent over a follow-up period, post-treatment. The trend was clearer for alcohol use; however, it was still indicated for drug use. The reviewed articles also indicate a trend towards treatment for alcohol and drug use resulting in a reduction in the severity of use.

In addition to a reduction in use and a reduction in the severity of use, the reviewed articles indicate a trend towards treatment for alcohol and drug use resulting in the reduction in the overall negative secondary consequences of use (e.g., social relationships, impulse control, and intrapersonal relationships), a trend that is once again supported by the outcomes from the Bridge Programme evaluation. However, evaluation of more specific secondary outcomes domains such as physical and mental health and perceived quality of life showed a more mixed set of outcomes. The evaluation of The Salvation Army Bridge Programme showed improvements in nearly all measured areas of secondary (consequential) treatment outcomes at end of treatment and follow-up compared to baseline (with the exception of vocational status). Similarly, despite the wide range of measures being used, a number of the reviewed studies found improvements in specific secondary outcomes post-treatment (e.g., Carroll et al., 2006b showed improvements in physical and mental health, Morgenstern et al., 2001, and Copeland et al., 2001, showed improvements in a number of secondary outcomes). However, a number of the reviewed studies also reported little or no improvement in some specific secondary outcomes after treatment (e.g., Copeland et al., 2001, found no change in psychological stress, Drummond et al., 2009, found no change in quality of life (physical or mental) and COMBINE 2009 (LoCastro et al.), found no improvement in employment status and also reported that physical health scores fell to below baseline levels). The Salvation Army's Bridge Programme, therefore compares favourably to the reviewed studies in terms that clients who completed the programme evidenced improvement in all secondary treatment outcomes measuredⁱ.

4.7 Limitations

There are a number of limitations to this systematic review of the published scientific literature and comparison of key treatment outcomes to the Bridge Programme's key outcomes that need to be noted.

First, all of the reviewed studies were experimental in design (i.e., compared different treatment interventions between participants) whereas the evaluation of The Salvation Army Bridge Programme was evaluative in nature (i.e., no comparison group) and analysis focused on within-participant comparisons before and after treatment. This difference in purpose resulted in a limited amount of data that could be directly compared.

Second, the type of treatment (despite study selection being limited to psychosocial community-based or residential interventions), length and intensity of treatment, and follow-up delays differed greatly between each of the reviewed studies and the Bridge treatment programme offered by The Salvation Army. Some treatment programmes were very short in duration (one session), others were spread across a number of weeks (up to 12 weeks). The intensity of the treatment programmes also varied considerably, from minimal intervention to in-house residential programmes such as that delivered by the Bridge Programme. Follow-up periods varied from 3 to 15 months in duration; the follow-up period used in the evaluation of the Bridge Programme was at the shortest end of this scale at 3 months in length.

Third, although the intake populations of each study were similar in regards to the gender and mean age of the participants (except when gender or age was limited by the inclusion/exclusion criteria of a study, e.g., Carroll et al., 2006b; Greenfield et al., 2007; Riper et al., 2007), the majority of the reviewed studies excluded participants with severe mental disorder, psychosis, or unstable mental illness. The Salvation Army population included persons with psychosis and mental disorder. Furthermore, the baseline (intake) severity of substance use differed across the studies. Compared to the populations of the reviewed studies, The Salvation Army population participating in the evaluation had baseline scores that indicated dependency at the more severe end of the alcohol and/or drug dependency bracket.

Finally, the tools used to measure outcomes ranged across the reviewed studies and the current evaluation. However, the majority of the measures employed were well tested (with proven validity and reliability) psychometric measures; therefore, although direct comparison of scores cannot be made, trends can be compared with acknowledgement of the various measures used.

Despite these limitations, it is clear that in comparison to the published scientific literature relating to treatment outcomes, The Salvation Army Bridge Programme compares favourably with other treatment programmes in terms of producing good key treatment outcomes for their clients: specifically, the reduction of harmful substance use and improvement in secondary consequential outcomes such as perceived quality of life, social relationships, and mental and physical health.

4.8 References

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CHAPTER 5.

Spirituality, a key component of The Salvation Army's Bridge Programme Model of Treatment

5.1 Introduction

Spirituality is a key component of The Salvation Army's Bridge Programme. Explicitly this is expressed through the Recovery Church, prayer, spirituality lifters/class, and the higher power component of the 12 step programme. There are other subtle spiritual aspects of the programme such as focusing on meaning and purpose beyond addiction. In our evaluation of the Bridge Programme, we measured spirituality using two methods: an internationally-validated instrument, the WHOQoL-SRPB, developed in conjunction with the World Health Organisation; and, a questionnaire that included a series of open-ended questions that allowed participants to consider aspects of spirituality, such as their beliefs, meaning in life, and spiritual practices, through open-ended questions that allowed written answers in words of their choice.

5.2 Literature Review

5.2.1 Defining spirituality

There is no agreed upon definition of 'spirituality' in the literature (Greenstreet, 2006; McSherry & Jamieson, 2011). However, various attempts have been made within various allied and public health sub-disciplines to develop conceptual models of spirituality to enhance the ability of health professionals to understand and practically engage with the provision of spiritual care (Swinton & Pattison, 2010). Four definitions of spirituality will be briefly discussed, that are pertinent to the evaluation of The Salvation Army's Bridge Programme: a definition grounded in and arising from the addiction literature; two definitions arising from New Zealand-specific research on the definition and function of spirituality; and a definition arising from international consensus-based processes.

Cook's descriptive study of 265 published works on spirituality and addiction provides a strong indication of the meaning and practical implications of the concept of spirituality to the addiction field (Cook, 2004). Cook identified 13 conceptual components of spirituality, of which 'relatedness' and 'transcendence' were most prominent. Based on these components, Cook defined spirituality as:

A distinctive, potentially creative and universal dimension of human experience arising both within the inner subjective awareness of individuals and within communities, social groups and traditions. It may be experienced as relationship with that which is intimately 'inner', immanent and personal, within the self and others, and/or as relationship with that which is wholly 'other', transcendent and beyond the self. It is experienced as being of fundamental or ultimate importance and is thus concerned with matters of meaning and purpose in life, truth and values (Cook, 2004, p.548-549).

Notably, Cook's focus on relationships and transcendence aligns with current literature on spirituality. Commonalities can be identified with the above definition and that developed by Egan and colleagues in their study of spirituality in end-of-life care in New Zealand:

Spirituality means different things to different people. It may include (a search for): one's ultimate beliefs and values; a sense of meaning and purpose in life; a sense of connectedness; identity and awareness; and for some people, religion. It may be understood at an individual or population level. (Egan et., 2011, p.321).

Egan's definition is supported by other literature that affirms the centrality of 'connectedness' and finding meaning in life to the functionality of spirituality (Conner & Eller, 2004; Weathers, McCarthy, & Coffey, 2015).

The above definitions indicate the necessarily individualised experience of spirituality, through their use of 'potentially', 'may', 'for some people'. The required ambiguity of a definition of spirituality has seen some authors challenge the development of strict definitions that would restrict the options available or explored regarding spiritual care (Swinton & Pattison, 2010). However, the above authors clarify and affirm the broad flexible nature of what Egan describes as a 'map of the terrain' that stands in contrast to an approach that aims to determine a 'one size fits all' best practice model (Egan et al., 2011). Notably, the focus on relationships and transcendence in the conception, and functional practice, of spirituality arises not only in addiction or New Zealand specific literature. Within the New Zealand context, a Māori specific definition has been suggested by Moake-Maxwell:

For Māori, the terms 'wairuatanga' or 'wairua' are used to speak of the spiritual dimension and things pertaining to the spirit of an individual or living being (as in the 'wairua' or spiritual essence of each living thing). However, whilst these terms are used by many Māori they are often not well understood by much of New Zealand society. Wairuatanga can be viewed as being interrelated to everything and as a fundamental aspect of health and wellbeing. Values, beliefs and practices related to wairua are considered an essential cornerstone of Māori health and well-being (Moeke-Maxwell in Egan, Cayley, Moeke Maxwell, Holmes, & Waldegrave, 2013, p.2). In New Zealand, it is important to recognise the impact that taha Māori (the world of Māori) has had on spirituality in healthcare.

Puchalski and colleagues have recently reported a definition of spirituality that is the result of ongoing collaborative efforts to build consensus amongst the international community. Through a series of international conferences exploring compassionate health care, this definition of spirituality was devised:

Spirituality is a dynamic and intrinsic aspect of humanity through which persons seek ultimate meaning, purpose, and transcendence, and experience relationship to self, family, others, community, society, nature, and the significant or sacred. Spirituality is expressed through beliefs, values, traditions, and practices, (Puchalski, Vitillo, Hull, & Reller, 2014, p.5).

As will be explored further in the sections below, the way that spirituality-informed addiction treatment services provide consumers with pathways to determine their meaning in life, develop relationships with their self and wider community, and express themselves through spiritual practices can be a significant pathway to increased mental wellbeing.

In light of the significant role that religious organisations have played in the provision of spirituality-informed addiction treatment (Brown, Whitney, Schneider, & Vega, 2006), it is important to note that the literature largely supports a multi-dimensional approach in which spirituality extends beyond the realm of religiosity (Flannelly, Flannelly, & Weaver, 2002; Joint Commission on Accreditation of Healthcare Associations, 2005; Tanyi, 2002). Egan describes a “semantic shift” (Egan et al., 2011, p.314) in which more people identify as being ‘spiritual’ than being ‘religious’. This shift can be identified both the lived experience of patients and health care providers, and the theoretical literature itself. Egan’s study (Egan et al., 2011) found that most understood spirituality as being something other than religion: 78% of surveyed participants excluded religion from their definition options. However, religiosity may still be equated to spirituality in certain community settings that are dominated by certain religious practice and/or particular ethnic groups, notably Pacific Island New Zealanders. Baldacchino (2006) found that nurses in Malta, in which the high cultural practice of Roman Catholicism where Holy Communion is offered daily in hospitals, associated spiritual care with religiosity. Other authors have also argued that the new broadening of meaning of ‘spirituality’ beyond that of religion has resulted in ‘floating spiritualities’ (Pattison, 2001, p.34) with no real meaning or substance (Bradshaw, 1994). In this sense, a focus on ‘functional’ definitions of spirituality may counter this criticism – as exemplified by the above definitions and ‘maps’ of spirituality that direct attention to the expression of spirituality through ‘beliefs, values, traditions, and practices’.

5.2.2 Increasing recognition

There is increasing interest in the role of spirituality in addiction treatment programmes in light of evidence that spirituality may offer significant mental and physical health benefits along the recovery pathway (Amaro et al., 2010; Avants & Margolin, 2004; Culliford, 2011). Talking more generally about the relationship between spirituality and mental health, Julie Leibrich - one of New Zealand's first Mental Health Commissioners – suggests that mental illness can provide a precious opportunity to engage in spiritual journeys that facilitate the growth of mental wellbeing (Leibrich, 2002). Supporting this perspective, the United Kingdom Mental Health Foundation has published extensively on the rights of consumers to explore their spirituality, and the benefits of doing so in the mental health treatment setting (Cornah, 2006; Lindridge, 2007; Mental Health Foundation, 2007).

Evidence exists that spirituality may serve as an initial protective factor against substance use and abuse in both adolescents and adults (Hodge, Cardenas, & Montoya, 2001; Larson & Larson, 2003; Miller, 1999; Ritt-Olson et al., 2004). Within the treatment setting, spirituality has been shown to improve the success of substance abuse treatments. Avants and colleagues found higher ratings of ‘spirituality or religious support’ by methadone-maintained patients was an independent positive predictor of abstinence from heroin and cocaine (Avants, Warburton, & Margolin, 2001). Similarly, Flynn and colleagues found that methadone-maintained patients using religion and spirituality as a source of recovery support were about twice as likely to be drug-free 5 years post-treatment than their peers who did not (Flynn, Joe, Broome, Simpson, & Brown, 2003). Other authors have found that strength of ‘spirituality’ was a predictor of sobriety within a cohort of outpatients primarily drawn from AA meetings (Polcin & Zeng, 2004; Zeng & Kaskutas, 2004).

The evidence supporting the important role of spirituality in the success of AOD treatments has caused some authors to argue that “it is becoming increasingly difficult to exclude spirituality as a possible factor in the addiction recovery process for many individuals” (Stewart, 2008, p.402). Nonetheless, the exact mechanisms by which spirituality-based programmes are able to initiate and sustain alcohol or drug abstinence and ‘recovery’ are not well understood. This has been the focus of most recent research in the field.

5.2.3 Spiritual-based therapies

The most widely utilised spiritual-based therapy is Alcoholics Anonymous (AA), a 12 Step programme based on the incompatibility of alcohol use and spirituality (Miller, 2002). The 12 Step AA programme is often incorporated into a broader raft of treatments that residential and out-patient facilities offer clients (Stewart, 2008). However, there is a need for other spiritual-based AOD treatment programmes as AA referral or involvement is often constrained due to church/state conflicts arising from theistic connotations of the programme (Galanter, 2007). Furthermore, other authors have identified a consumer desire for spirituality-based therapies that extend beyond the 12 Step approach (Dermatis, Guschwan, Galanter, & Bunt, 2004).

Spiritual Self Schema (3-S) therapy is one such spirituality-informed addiction treatment that incorporates theistic and non-theistic spiritual belief systems. The core goal of 3-S therapy is to initiate a cognitive shift in the client from the ‘addict self’ to the ‘spiritual self’: that is, from a self associated with harm-inducing behaviours and beliefs to a self associated with harm-reduction behaviours and beliefs (Avants, Beitel, & Margolin, 2005; Avants & Margolin, 2004; Margolin et al., 2007). 3-S therapy involves visualisation, mindfulness, cognitive reframing and meditation practices. Amaro and colleagues found that an 8-week course of 3-S therapy with Latina women (n=13) saw the majority of participants experience an increase in the experience and expression of spirituality (70%) and shift from the ‘addict’ self to the spiritual self (80%) (Amaro et al., 2010). Significantly, a similarly high proportion of women experienced a decrease of drug craving (70%) and more importantly drug usage (60%), which they directly attributed to the therapy. The results of this small study attests to the ability of spirituality-based therapy to incur positive attitudinal and behavioural shifts. Similar positive results have been found in studies using similar spirituality-based techniques for men and women in methadone maintenance programmes (Avants et al., 2005; Simpson et al., 2007).

Of note, Amaro and colleagues (Amaro et al., 2010), and a previous 3-S therapy study (Avants & Margolin, 2004), found that the improved frequency of spiritual qualities in daily life observed following the course completion returned to baseline levels at 20-week follow-up. The authors thus recommend booster sessions. The results of these studies suggest that part of the success of the AA and church-based approaches may be the ability of ongoing community-based settings to provide the necessary ‘boosters’ to ensure that behavioural and attitudinal changes are reinforced and sustained long-term. Indeed, Tonigan, Miller, and Schermer (2002) found that ongoing AA attendance predicts ongoing abstinence, whilst Richard, Bell and Carlson (2000) found that church attendance was correlated with ongoing sobriety amongst sober alcoholics. (Note, in New Zealand at most 20% of the general population goes to a religious service regularly, so this is not relevant in this country.)

A recent development has been spiritually-modified Cognitive Behavioural Therapy (CBT). This treatment approach arose out of acknowledgment that whilst it is a violation of autonomy for spiritual therapists to impose or privilege their spiritual values on secular-inclined patients, it is equally a violation of autonomy when secular therapies privilege secular values in their treatment approach (Hodge & Lietz, 2014). Exploring therapist and client perspectives on spiritually modified CBT, Hodge and Lietz found overall positive feedback. Participants highlighted key benefits or promoting spirituality such as increased 'connectedness' and access to/involvement in supportive social environments, and change in self-perception that assist the recovery process. However, they also identified potential risks that need to be handled effectively: the risk of a therapist imposing personal beliefs, and conflict arising in group settings due to clashes of belief systems (Brown et al., 2006; Hodge & Lietz, 2014).

5.2.4 Mechanisms

The spiritual-based approach to AOD treatment can be best understood by looking at three different perspectives of AOD recovery. The first two are empirically grounded and frame addiction as a disorder to which physical and biological-based treatments are best suited (Galanter, 2007). These approaches are the psychopathology perspective that underpins the diagnosis by category and symptom exemplified by the Diagnostic and Statistical Manual of Mental Disorders (American Psychological Association, 2013); and the behavioural psychology perspective that interprets and frames both the path to addiction and the path to recovery around discrete stimulus-response sequences. A third perspective, under which spiritual-based treatments for AOD falls, seeks to understand and frame recovery according to the subjective experience of substance-users themselves (Galanter, 2007). 'Recovery' from this perspective is difficult to measure or objectively determine, but rather is ascertained "through the prism of the person's own introspection and reflection" (Galanter, 2007, p.266). Regarding 'spiritual grounded recovery', the goal is "the achievement of meaningful or positive experiences, rather than a focus on observable, dysfunctional behaviours" (Galanter, 2007, p. 266). This makes the understanding of the mechanisms by which 'spiritual grounded recovery' occurs much more complex to understand. Nonetheless, progress on this front has been made.

Kelly and colleagues found that AA attendance was associated with increased spirituality/religiousness, which mediated in part reduced substance abuse. This effect was found to be stable across time, and observed after controlling for confounding variables such as age and ethnicity (Kelly, Stout, Magill, Tonigan, & Pagano, 2011). This result provides direct support for spirituality/religiousness as having direct impact on sobriety and recovery, as well as the ability of AA to "mobilise spiritual changes" (Kelly et al., 2011, p.459). Regarding the mechanism by which AA is able to mobilise such changes, Kelly et al theorise that the spiritual-based AA programme may reduce "oppositional barriers" (Kelly et al., 2011, p.459) to spiritual exploration. By increasing the likelihood of spiritual exploration, AA may increase psychological wellbeing that subsequently reinforces recovery-related changes that are occurring simultaneously (Kelly, Stout, Magill, Tonigan, & Pagano, 2010; Pearce, Rivinoja, & Koenig, 2008).

Other studies have reported particular protective effects of spiritual practices on abstinence post-treatment. In their examination of the Mayo Clinic outpatient addiction programme, Piderman and colleagues found that private spiritual practices was most strongly related to 12-month abstinence:

for a one-point increase in the frequency of personal spiritual practice, there was a two-fold increase in the likelihood of 12-month abstinence (Piderman, Schneekloth, Pankratz, Stevens, & Altchuler, 2008). 'Existential wellbeing', a spiritual-based factor related to one's sense of meaning in life, also increased the likelihood of 12-month abstinence, although this result was not statistically significant. Thus the authors suggest that treatment programmes should find appropriate ways to encourage the use of private prayer, meditation and/or spiritual readings, and the discussion of 'existential issues' (those pertaining to the purpose/meaning of one's life) to facilitate the recovery process. This recommendation is supported by other evidence showing that personal and communal spiritual and religious practices such as prayer and other religious ritual increase the likelihood of sustained abstinence and recovery (Koenig, McCullough, & Larsen, 2001; Wills, Yaeger, & Sandy, 2003). Finding evidence of a protective effect of spirituality against increased AOD use post-discharge, Stewart and colleagues also suggest that specialists emphasise spiritual elements in discharge planning to reduce the risk of relapse (Stewart, 2008).

Various studies have unpicked the relationship between 12 Step programme attendance (e.g. AA, Narcotics Anonymous, and other derivatives) and the recovery process. Nealon-Woods and colleagues, for example, found that AA attendance in men living with recovering peers (n=134) was motivated by a sense of fellowship and social support (53%) (Nealon-Woods, Ferrari, & Jason, 1995). Notably, 71% explicitly stated that their attendance was *not* motivated by spirituality. As mentioned in the first section of this review, social support and relationships form a core component of the broad multi-dimensional definition of 'spirituality' that is seen as different but not separate from organised religiosity which may be what these men were referring to (Egan et al., 2011) Conner & Eller, 2004; Weathers et al., 2015). Other authors have attributed the ability of spiritual-based treatment programmes to promote and sustain sobriety and overall wellbeing to their creation of supportive social networks and environments (Galanter, 2007; McCoy, Hermos, Bokhourm, & Frayne, 2005; Neff, Shorkey, & Windsor, 2006). Examining the role of Catholic and Protestant interventions in AOD in Brazil, Van der Meer Sanchez found that religious communities support the path to recovery not mainly through their blatant promotion of sobriety, but through the provision of "social resources for restructuring;" an expansive and multi-dimensional social support system that forms a 'new family' for the individual (Van der Meer Sanchez & Nappo, 2008, p.645).

Evidence also supports the role of forgiveness as a spiritual/religious factor that promotes AOD recovery. This aligns with the AA edict that "resentment is the 'number one' offender" (Alcoholics Anonymous, 2001, p.64) in destroying the changes for recovery and abstinence. Webb and colleagues found that forgiveness was negatively associated with alcohol use and problems at both baseline and post-treatment (Webb, Robinson, Brower, & Zucker, 2006). Notably, the authors found variations in the ease with which different types of forgiveness could be facilitated by treatment programmes: 'forgiveness by God' the easiest, followed by forgiveness for others, and forgiveness for self being the hardest to initiate changes in. The authors tentatively explain this finding by reasoning that 'forgiveness for self' may be less related to spirituality and religiousness as compared to the other two dimensions of forgiveness, thus being less affected by spirituality-based treatments. Nonetheless, the authors posit that forgiveness for self may be the key to sustainable long-term abstinence and recovery, necessitating further investigation into how to facilitate clients in the process of dissipating their self-directed resentment and anger.

A review of The Salvation Army's substance-abuse treatment program in the United States (US) provides further insights into the mechanism by which spirituality-based treatments may assist the recovery process. Wolf-Brannigan and Duke examined the components of success of the residential Harbor Light Centre in Washington DC in which church-based services are provided alongside secular treatment interventions (Wolf-Branigin & Duke, 2007). The church programmes provide various spiritual services such as Bible study and fellowship meetings, religious services, pastoral counselling, music programmes, and youth-specific activities. Interviews with participants indicated that the success of the Harbor Light approach lay in the way that the programme directed a 'return' to their spiritual roots. The spiritual environment of Harbour Light was a pathway to return to the spiritual/religious background that many participants had grown up in, and that their addiction had led them away from. This interesting finding, however, may not translate directly to the New Zealand setting where religious identification is not as prevalent as in the United States. Whilst about 85% of Americans identify as 'religious', 70% believing that 'there is definitely a personal God' (Kosmin & Keysar, 2009), a study on spirituality and religion in New Zealand found only 53% of participants believed in God and half of these people harboured doubts (Vaccarino, Kavan, & Gendall, 2011). Nonetheless, the importance of holistic health care in New Zealand has recently been affirmed by Egan and colleagues' finding that 99% of participants (patients, family members, health professionals, and chaplains) "understood spiritually to be meaningful" (Egan et al., 2011, p.321) in their study of spirituality in end-of-life care. AA has also been found to have similar beneficial effects in more secular societies such as in the United Kingdom (Gossop, Trakada, Stewart, & Witton, 2005). Kelly and colleagues postulate that in this setting, AA may exert its benefit primarily through social network mechanism rather than spiritual practices (Kelly et al., 2011).

Research by McCoy, Hermos, Bokhourm, & Frayne (2005), however, supports the essence of the Harbor Light programme in that spiritual-based treatments fill a 'void' that cannot be addressed by exclusively secular programmes. Interviews with clinical and administrative staff from Evangelical Christian residential rehabilitation programmes presented the common conception of substance abuse as the maladaptive response to fill a spiritual void; in this way, spiritual-based treatments are the logical and only pathway to proper recovery.

The impact of spirituality on the success of AOD treatment has been found to be moderated by various factors. Stewart and colleagues found that whilst finding spiritual meaning in life was a protective factor against increased AOD use following discharge, this protective effect was moderated by treatment history: those with an existing treatment history were more likely to be re-admitted in the follow-up period than those for who had not (Stewart, 2008). It appears that the benefits of spiritual-based treatments may have the greatest benefit in early stages of exposure, such that clients who have had significant and repeated exposure to spirituality-based therapies (such as the widely-used 12 Step AA programme) show less pronounced improvements compared to first-time users. This may be due to previous exposure raising initially low levels of spirituality/religiousness to a level from which greater increases are more difficult to obtain. This perspective is supported by Kelly and colleagues finding that spirituality/religiousness increased most notably in AA attendees who initially measured low on the variable (Kelly et al., 2011).

5.2.5 Client perception

Evidence indicates that there is high demand for spiritual-based AOD therapies. Dermatis and colleagues found that the majority of participants in a residential therapeutic community (n=322) desired more spiritual-based treatments in the treatment programme (Dermatis et al., 2004). Furthermore, almost half of the participants specifically desired the 12 Step AA/NA programme, this desire correlated with past experience with the programme. Notably, however, desire for the AA/NA programme was not associated with demographic characteristics such as religion, the authors thus arguing that religious affiliation is of “limited utility” (p.50) in the assessment of spiritual-based programmes such as AA. Galanter and colleagues found similar results in a residential AOD therapeutic community (Galanter et al., 2007). Patients indicated that they wanted greater emphasis on spirituality in the treatment programme, specifically, a desire for 12 Step programmes to be included. In addition, patients rated spiritual orientation as being more important to their recovery process than was having a job.

Despite such indications of a desire for spiritual-based treatments, there appears to be a gap between the perspective of consumers and clinicians on the importance of spirituality in the AOD recovery process. McDowell and colleagues found that nurses underestimated the importance of spirituality to the inpatient recovery process, they instead prioritised factors such as food, accommodation, and entertainment as factors crucial to recovery (McDowell, Galanter, Goldfarb, & Lifshutz, 1996). Galanter and colleagues also found that both medical students and teaching staff underestimated the importance of spirituality to the recovery process, favouring job and outpatient treatment as being of greater importance (Galanter et al., 2007). Nonetheless, various authors caution that spiritual needs are highly individualised and thus clinicians should not assume the 12 Step programme or other spiritual-based interventions will appeal to all clients (Arnold, Avants, Margolin, & Marcotte, 2002; Dermatis et al., 2004; Neff et al., 2006).

5.2.6 Summary

There is growing recognition of the power of spirituality-informed addiction treatments to foster mental wellbeing. Furthermore, strong consumer appetite for such treatments has been documented, and the underestimation of this desire by health care professionals acknowledged. A key mechanism by which spirituality-informed treatments work is their fostering of strong social bonds and relationships that establish new networks of support and enable or affirm a shift in identification from the ‘addicted self’ to a ‘spiritual self’. More research is required to determine the intricacies of how spirituality can be most effectively operationalised in addiction treatment according to the socio-political context in which they occur: within societies that identify as secular, as predominantly Christian, or with indigenous cultural norms and perspectives that require specific consideration. Increased awareness of spirituality as different, although not necessarily separate, from religion may facilitate general uptake of spirituality-informed addiction treatments. This may be assisted through the development of new treatment programmes that are not grounded in or run by religious frameworks or organisations.

5.2.7 Aims of the evaluation related to spirituality

- i. Measure spirituality on Entry to the programme and the End of treatment; does the Bridge Programme increase it – irrespective of outcomes?

- ii. Examine relation between spirituality and outcomes (e.g. is higher spirituality related to better outcomes, low spirituality with non-completion rates?).
- iii. At the End of treatment, use a questionnaire to examine clients' subjective views of what aspects of spirituality are related to good outcomes

We answered Aims i. and ii. using data from the WHOQoL-SRPB measure which assesses aspects of participants' quality of life covering spirituality, religiousness, and personal beliefs . We answered Aim iii. by examining participants' answers to specific open-ended questions asked at the end of treatment. Generally, we looked for if and how participants' spirituality had changed by being on the programme.

5.3 Results

5.3.1 Quantitative findings

(i) Participants' definition of spirituality

At the end of treatment, participants were asked to select from a list of 19 definitions, which ones they would include in a definition of spirituality (they could select as many or as few options as they wished). Participants could also provide their own definition in an 'Other' option.

Figure 3 shows the percentage of participants selecting each definition. The mean number of definitions selected was 6.8. The definitions of spirituality selected most often by participants were: Faith (59%), Beliefs (57%) Values (56%), Meaning (49%), and Purpose (49%). Excluding the Other category and participants who did not provide an answer, the definitions of spirituality selected least often were: It is meaningless (5%), "Transcendent"²⁶ (17%), Religion (20%), Mystery (25%), and Essence (28%).

Under 'Other', participants included definitions such as: "Energy," "Justice," "Wairua," "Freedom," "Self-love," "Higher power," "Love," "Tolerance," "Non-judgemental," and "Acceptance."

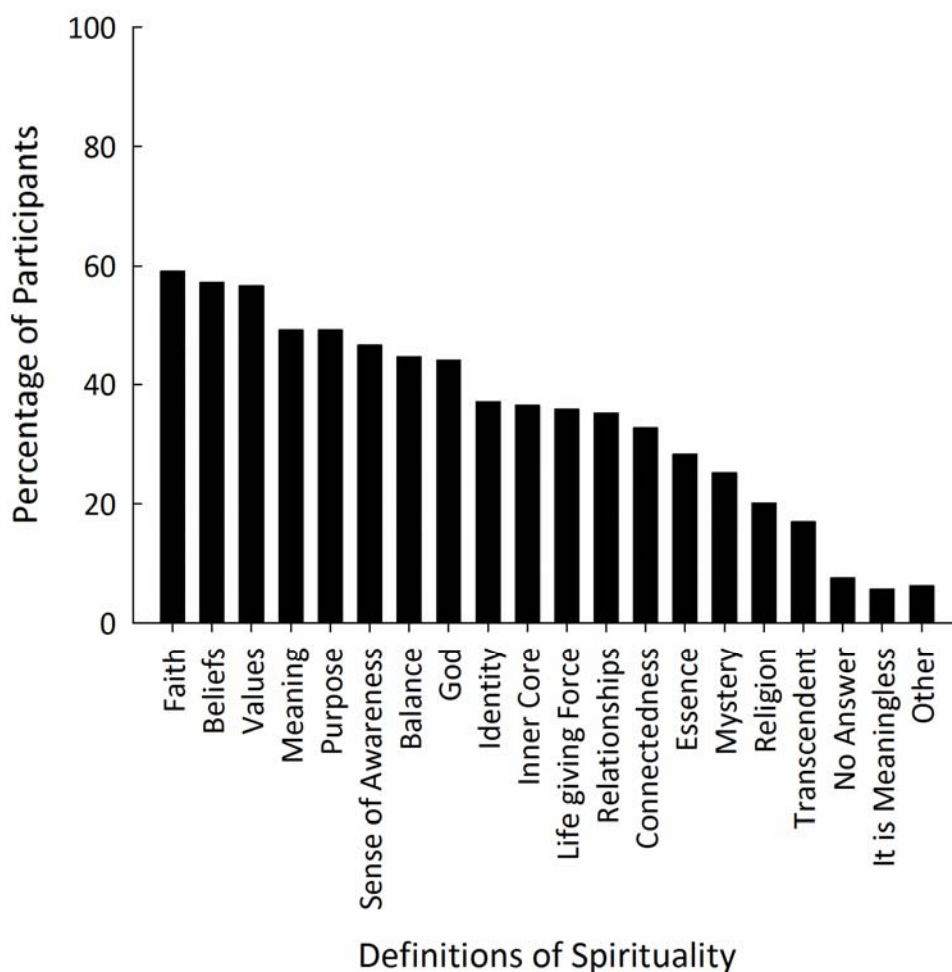


Figure 5.1. The percentage of participants selecting each definition of spirituality.

²⁶ Some participants indicated that they did not know what this word meant.

We then used the same data analysis strategy as we used in Chapter 3 to analyse our other primary and secondary outcome measures. First we used summary statistics (raw means, standard deviations) to describe the characteristics of the participants in the Bridge Programme in relation to their spiritual beliefs at each phase of treatment. We then fitted linear mixed models so that we could make inferences about how participants' spiritual beliefs were affected by the phase of the treatment. That is, did participants' spiritual beliefs change between baseline, end of treatment, and/or follow-up? The effects were adjusted for sex, age, time in the treatment, and reason for referral. For detailed descriptions of each model, see Appendix 3.7.

(ii) Does the Bridge Programme increase spiritual well-being over the evaluation period?

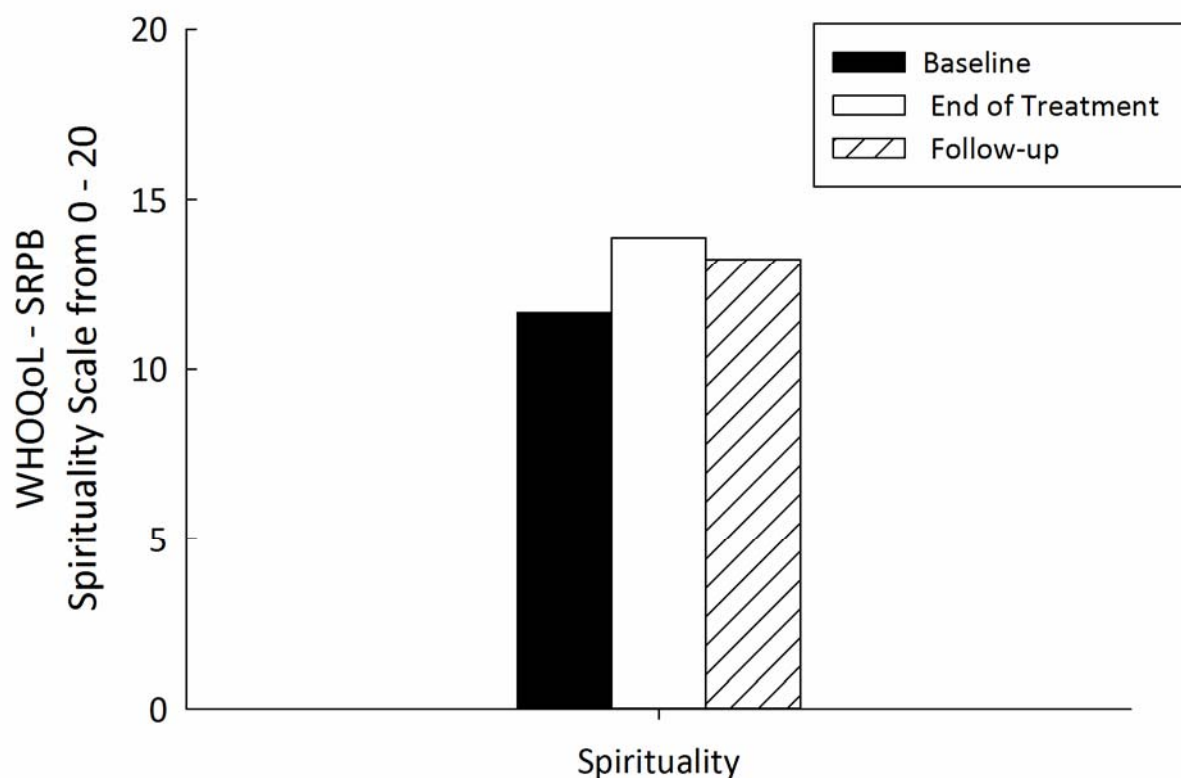


Figure 5.2. Overall spiritual beliefs as measured by the WHOQoL-SRPB at baseline, end of treatment, and follow-up. Note that a increase in score indicates an increase in spiritual beliefs.

Raw means (see Figure 5.2) suggested that participants' spiritual beliefs increased from baseline to end of treatment (11.65 at baseline to 13.88 at end of treatment, an increase in score indicates an increase in spiritual beliefs), however, they decreased slightly by follow-up (13.24). Statistical modelling established that the increase in spiritual beliefs was significant at end of treatment but declined significantly at follow-up.

(iii) Did particular components of participants' spiritual beliefs change over the evaluation period?

The overall WHOQoL-SRPB score can be broken down into sub-scores²⁷ which reflect 8 different components of spiritual beliefs: Spiritual Connections; Meaning & Purpose in Life, Experiences of Awe and Wonder; Wholeness & Integration; Spiritual Strength; Inner Peace; Hope & Optimism; and Faith.

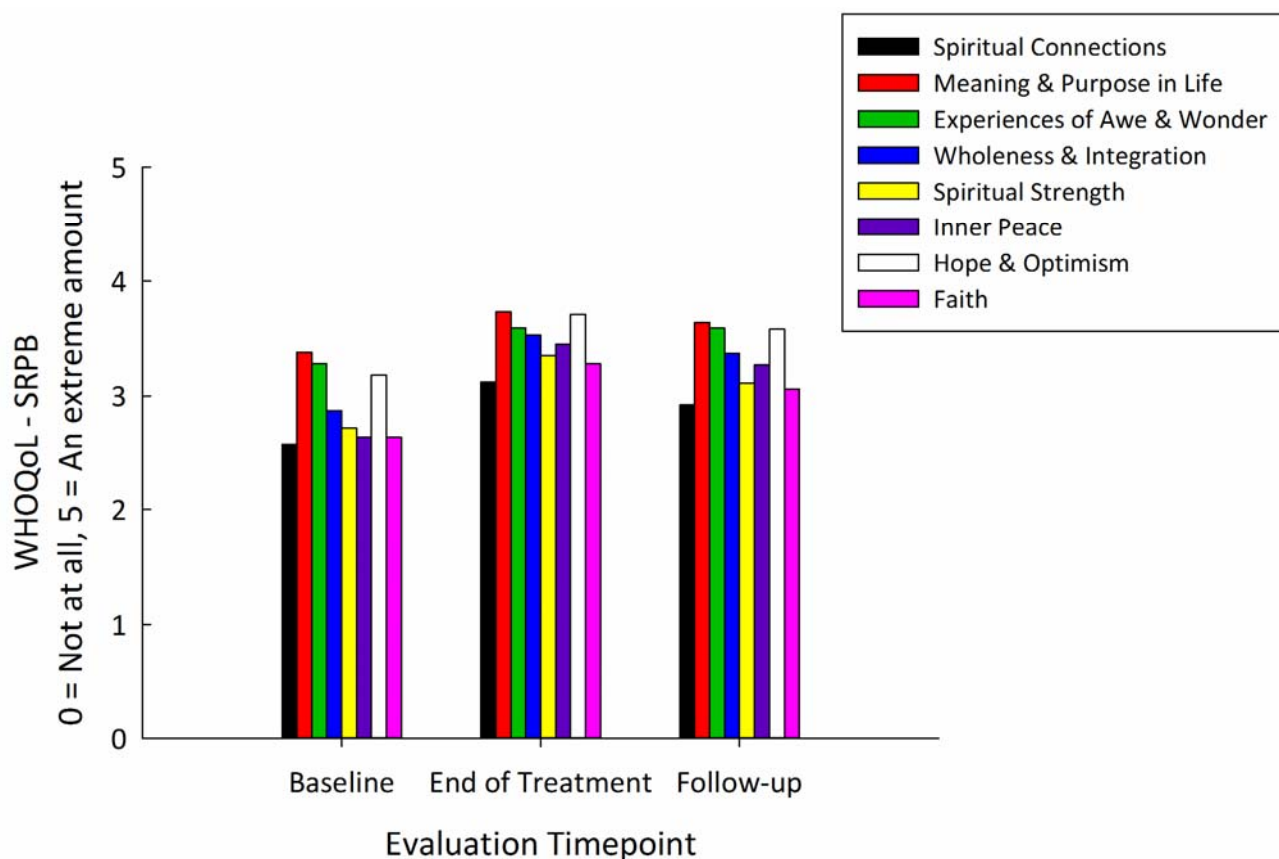


Figure 5.3. Individual components of participants' spiritual beliefs as measured by the WHOQoL-SRPB at baseline, end of treatment, and follow-up. Note that an increase in score indicates an increase in spiritual beliefs.

To assess whether particular components of participants' spiritual beliefs changed over the course of the evaluation, the eight subscores calculated from the WHOQoL - SRPB were analysed in a similar fashion to the overall score. Statistical modelling established that that participants' scores on all eight components of spiritual beliefs significantly increased from baseline to end of treatment (an increase in score indicates an increase in spiritual beliefs) and from baseline to follow-up. However, scores on the spiritual connections, spiritual strength, inner peace, and faith components of participants' spiritual beliefs were not maintained at follow-up compared to end of treatment.

²⁷ WHOQoL-SRPB sub-scores are calculated as a mean score of 4 scores; each is scored on a scale of 1 to 5 (1 = poor quality of life, 5 = good quality of life, as related to spirituality).

(iv) Does spiritual well-being matter in terms of treatment outcomes?

For users of alcohol (i.e., of alcohol only, alcohol and single drug, or alcohol and multiple drugs), we found that an increase in overall spirituality was associated with a decrease in severity of alcohol use. Likewise, for users of drugs (i.e., of a single drug only, multiple drugs only, alcohol and single drug, or multiple drugs), we also found that an increase in overall spirituality was associated with a decrease in severity of drug use.

5.3.2 Qualitative findings: End of treatment spirituality questions 6, 7, 8, 9, 10, & 14

The researcher who analysed the qualitative findings (RE) has had many years working in the spirituality and healthcare field, but acknowledges a limited knowledge of the AOD field. The analysis is largely descriptive: the themes are based, in the first instance, on the open-ended questions posed in the questionnaire:

- (6) Do you have a belief system that is important to you? Has this changed since finishing the Programme?
- (7) What matters to you most? Has this changed since finishing the Programme?
- (8) Did the Programme affect your spirituality or religious beliefs? If so, how?
- (9) Did the Programme alter any sense of meaning or purpose in your life? If so, how?
- (10) Are there spiritual practices (e.g. prayer, attendance at church) that have helped you during your time in the Programme? If so, what?
- (14) How did the discussion about knowledge of a higher power affect your experience in the Programme?

The responses to the open-ended questions were collated into a Word document and coded. The codes were based on the questions (e.g., meaning and purpose) and the researcher's prior knowledge (e.g. values). All codes were then further analysed, resulting in 12 themes. Further analysis was then done in partnership with other researchers, therefore some comparison and discussion of findings has added to these results. The final section comments on the results in relation to the literature review that is included above.

(A) Thematic analysis of open-ended questionnaire questions

The following thematic analysis is based on a close reading of the open-ended spirituality questions outlined above. These questions were chosen for analysis to help answer the research/evaluation question of "what aspects of spirituality are related to good outcomes". The analysis resulted in over 6000 words and 50 codes. Further analysis of the codes resulted in 12 themes and sub-themes. The 12 themes were: religious responses, family/whānau, values, self-awareness, meaning & purpose, contribution, strengthened/improvement, higher power, connection, religious-spirituality difference, purpose, and spiritual practices. The following approach combines Questions 6 & 7 and 8 & 9 as they are asking about similar things; further many of the themes run across all the questions. All quotes are identified by the participant's questionnaire number.

(i) Belief systems and 'what matters most'

Central to understanding spirituality are belief systems and 'what matters most'. The experience of A & D addiction often inclines a person to think about such questions in life, particularly as they experience the so-called 'dark night of the soul', the experience of existential angst or spiritual pain and distress. Given this, participants were asked two questions aimed to draw out something about their beliefs, what mattered to them, and if these things had changed as they went through the Bridge Programme. Key themes included sobriety, religious responses, family/whānau, values, self-

awareness, meaning & purpose, contribution, and ambivalence. These are developed under the headings of: (ii) Spirituality is important and no change; (iii) Spirituality is important and changed; and (iii) Ambivalence.

(ii) Spirituality is important and no change

Some participants answered the spirituality questions in the affirmative, that is, they reported a belief system that was important, and/or named what mattered most, but there was little change or no change over the programme period. An obvious theme running through the responses was religion. While only a minority, religious participants often framed their answers in terms of God, Jesus, or other religious language. For instance, one participant had Islamic beliefs which did not change, however what mattered most in life “became more clearer” (127). Others who said there was no change in their beliefs or what mattered most said,

“always believed in Jesus and God” (152)

“Mormon Church” “No [change] I believe in God” (517)

“believe in the Lord – he is all around – he is good” (555)

“Christianity” (323)

“No I believe in God” (325)

“Rastafarian” (1412)

“turning my will and gifts over to my God”

Non-religious responses made up the majority of answers across all questions. For instance, many participants who said there was no change but referred to what mattered most in terms of sobriety, family, values, or a secular belief system:

“staying sober and clean” (524)

“I have always believed in good things happen to people who do good things” (107)

“belong to a world that I can understand and accept what lies ahead everyday” (108).

“There is a reason for everything” (522)

“my kids, my family” (527)

“just doing what I know is right” (549)

“My own values and morals” (1050)

“My belief system has not changed..” (1409)

“I am and was an atheist” (748)

“Do no harm to others” (137)

“No, my Moko matters most, which is why I am here” (138)

“a sense of belonging and hope that things will work out the way they are meant to be” (301)

“Martial arts’ (711).

These participants appeared to understand what was important but did so in the context of this not changing over the programme period. These responses above fall across the themes discussed in more details below, that is, participants identify such things as family/whānau, values, beliefs, and so on as important. One minority or exceptional case was the participant who said “a sense of belonging” mattered most; this also was noted when asked about the impact of the programme, “How to stay healthy, how to communicate better, a sense of belonging” (1019).

(iii) Spirituality is important and changed

Most participants said that spirituality was important and it had changed over the time of the programme. Participants’ answers are named under the themes of sobriety, religious lens, self-awareness, meaning and purpose, values, contribution, and family/whānau.

Sobriety

Unsurprisingly sobriety was a major theme. Many participants suggested their belief system and what mattered was about their sobriety (109, 520) and “abstinence” (119), for example,

“I do deserve this life of sobriety” (beliefs), “living a sober life” (matters most) and “greater meaning in my life to remain sober”, with the programme changing his or her spirituality/religious beliefs “more positively”(101)

Sobriety is clearly an aim of the Bridge Programme and many participants framed this as both what matters most and a key to recovery,

“My sobriety is the most important thing to me. I have different priorities now. I was all about me when I was drinking” (1004)

“My sobriety. I never intend to pick up a drink again” (1406)

“Stop drinking” (1410), “Keeping sober” (1412)

“My sobriety. It has started since finishing the programme. This encompasses spirituality, relationships, self-awareness, pride” (812)

The last quote, typical for some participants, combines a number of factors related to a broad understanding of spirituality. These factors have become important, partly it appears, due to the Bridge Programme.

Religious lens

The religious theme was evident in the group who said their beliefs had changed through their experience of the programme. A church-going Catholic participant said he had important beliefs that

had become “more expansive” from the programme. For this participant, what mattered most, and had also “been accentuated” by the programme was “being warm and worthwhile to all... finding God’s Spirit in other people” (135). Combining themes, participant 109 suggested what was important now was “a higher power”, “a lot more awareness of it now”, “keeping my sobriety” and “life feels good again, confidence and self-esteem is back” (109). Other indicative comments included:

“it has resolved my reason for becoming a Christian in the first place” (130)

“Seventh Day Adventist” and beliefs changed, particularly “my relationship with God” (132)

“I now believe in God” (819).

There were a number of participants who said that their relationship with God or a higher power had changed, and/or their use of prayer had increased over the programme period. These latter points will be discussed below in the spiritual practices (C) and higher power (D) sections.

Self-awareness

Self-awareness, including a general awareness of a generic spirituality was an important theme across the questions. For instance, there were a number of general comments about the changes over the programme, some suggesting “it made me aware of spirituality” and “gave me a sense of belonging and a spiritual awakening” (113), and,

“yes it built more spirituality” and “it made me see better things in life than alcohol” (114)

“surrender, turn it over and listen – self awareness, it is the key” (551)

“Self-awareness sense of spiritual well-being” (1032).

This generic spirituality referred to is related to the idea that there is something outside of the person who can help in some way. This aligns with some of the 12 Step approaches, with participants commenting in both religious and non-religious ways, about what now matters most,

“having an understanding that something or someone is there to guide me” (105).

“In something greater than myself” (1410)

“I have become more spiritually connected” (1423)

“When I started [I had] no belief system. No[w] I believe in a higher power” (328).

Related to self-awareness was the acknowledgment by some participants that they had become aware that they mattered as a person,

“belief in yourself” (1407)

“More belief in myself, more confidence” (834)

“Self-belief –has strengthened” (747)

“My friends, family and myself. I realise now that I am worth it” (1028)

“my family, yes it’s changed, now I matter most” (522)

“I matter now –in the past I didn’t care as no one had. So now it is me and my family living A & D free” (1016).

The mention of family is important, as many participants noted a range of interconnected changes over the programme, thus re-prioritising things in an ideally sober life.

Meaning and purpose

Meaning and purpose was a theme that ran through many participants’ comments and evident in the changes that they had reflected on over the programme, for example,

“It made me feel that I could have a meaningful life without alcohol and drugs” (119)

“now I do have a belief” (151)

“To stay sober and to sort out my ways in life by getting my act together instead of not knowing where I am going and having no goals in the future” (513)

“I am more focused on the path I want to be on” (1430)

“enjoying life. The world is what you make it. When I started I just thought the world was fucked” (549).

These latter two responses suggest the programme had an impact on purpose in life.

Values & Contribution

Values is a theme that covers many of the things that participants noted mattered most or how they framed their beliefs. Many participants noted the Bridge Programme had clarified, strengthened, affirmed, or even shown them what was important,

“my values have gotten stronger” and “believe more” (125)

“Yes – Core values. Mindfulness. Empathy” (1042)

“Far more compassion is embodied in my system now, both for myself and others” (1027)

“Hope, I now have some” (1021).

Related to values, was the minor theme of contribution. Over the programme, some participants reflected on what they did in and for society as suggested by this quote, “while there, thinking about leaving job – wanted to find a job that helps people” (318).

Family/whānau

One of the strongest themes across all questions was family/whānau, that is, the importance of family in participants’ life, how much they mattered. Indicative responses that commented on family/whānau and changes due to the programme were,

“more, stronger feeling for family” (523)

“my relationships – they’re growing stronger” (303) and “my relationships”(320, 325, 1042)

“myself, ... entire family, my wife, children and grandchildren” (556)

“my Mum, kids and Mokos” (560)

“Family / relationships / connections are now more important” (1429).

Ambivalence

While most participants appeared quite articulate about what was important, mattered most and had changed or not over the programme, there were a minority who were not sure either about the questions posted, “This is a loaded question – not sure” (144), or about sobriety/recovery,

“I still believe I need my cannabis for my pain relief”, “I won’t smoke when I finish my programme. I stay in pain.” (554)

(B) Programme effect on spiritual or religious beliefs

Questions 8 & 9 asked about spiritual beliefs and if they had changed over the programme: “Did the Programme affect your spirituality or religious beliefs? If so, how?” and “Did the Programme alter any sense of meaning or purpose in your life? If so, how?” For those who said yes to the question (who were in the majority, their responses could be separated into those with a spiritually religious lens and those with a generic spiritual lens. Finally, the ‘no’ responses are also detailed below.

(i) Religious lens

The religiously-inclined participants who said that the programme impacted on their beliefs suggested such things as,

“gave me more food for thought” (126)

“Yes it has made my spiritual life stronger by understanding my addiction and my self” (129)
(an active Seventh Day Adventist)

“Christian values have been awoken” (130)

“yes, I believe God is the way for all areas in my life” (542)

“Helped increase my faith in God” (327)

“The programme has re-strengthened my faith” (1421)

“I was a non believer. Now I believe in God who I choose to be my higher power and will continue to have faith” (1007)

“I would never have gone to church before the programme” (1035)

Similar to what was described in the earlier section (A)(iii) *Religious lens*, there was both a strengthening of faith and religious beliefs, and in some cases, conversion.

Two exceptional comments in the religious group were,

“I used to blame God for taking my husband and son from me and I resented him for that. Getting rid of this resentment and accepting God has given me peace” (1013).

“I reconnected again. My resentment towards him has gone” (1038)

This was an exception as it suggested a particular approach to God regarding blame and resentment.

(ii) Generic spiritual lens

The majority of responses came from those who said the programme had impacted on their spiritual beliefs, or specifically their “sense of meaning and purpose”, without referring to religion. Most participants said their beliefs had been “strengthened” (1047), indicative quotes included,

“believe in myself more acceptance towards others” (157)

“I am more aware of it now” (320)

“My spirituality has increased hugely. I have always been a spiritual person but I was just tapping on the door. Now the door is open” (812)

“It opened my eyes to my spirituality” (1050)

“Yes, now I believe that I am worthy of a good, happy, full life. I have a sense of direction” (150)

“yes that I have meaning for myself and other around me and what my purpose is in life, by learning that drugs, alcohol is stopping me liv[ing] fiscally, spiritually” (129)

“it provided a structured enquiry as to what it is and how to “find” it thru the 12 steps” (551)

“yes the steps are a helpful way to love” (517).

These final comments refer explicitly to the 12 Step programme with a focus on the love component and an approach to understanding “it” (presumably spirituality). Furthermore, the theme of awareness, as above in section (A)(iii) *Self-awareness*, came through strongly for many participants,

“I am more aware of it now” (320)

“Just made me think about it more. Made me aware of what’s out there. Still struggling to believe. Time, I have to be patient” (1004)

“Self-aware and mindful of others and things around me” (1042).

This awareness extended to the negative impact that addiction causes,

“being reminded of the devastation the addiction leaves” (130)

“I’m now thinking clearly, now that life is worth living” (145).

A few participants noted that the programme had suggested, for them, the differences between religion and spirituality,

“Made me see the difference between religion and spirituality” (721)

“..it made me realise that religion is set on their terms whereas spirituality is one person’s inventory” (710)

“it gave me a better understanding of it (it’s not just God..it can be anything)” (320) (from the Higher Power question).

Some participants noted their awareness of a sense of meaninglessness or spiritual vacuum, either personally in society generally,

“Greater awareness of spiritual bankruptcy. I now can say that I have a greater sense of enlightenment” (723)

“I have found some of my soul” (310).

“I realise there is a meaning and purpose to my life, before my life felt meaning[less]” (301)

“Life is worth living” (1047).

For some participants, there was a growth of awareness of connectedness and the need to help others,

“I have a connectedness with something now where I did not before” (1027)

“I feel connected..., I want to help other addicts” (303)

“yes, helping others, I’ve always wanted to do, I don’t know what area though. But I still want to” (524)

“It has taught me to look outside myself” (1021).

As will be further discussed in section (D) below, there were some participants who referred to their understanding of a higher power,

“I realised I could rely on my higher power to help me get better” (301)

“it introduced me to higher power which I tried to get in touch to during the programme. Higher power supported me and help me a lot” (537).

An indicative response that sums up many participants’ comments regarding the impact of the programme was, “Growth, family and friends, sobriety, and mental/emotional/physical and spiritual wellness. It has changed immensely” (1027).

“How I abused alcohol. The purpose and meaning in my life is my children” (555)

“I didn’t really have a purpose until now and that’s be a great dad”(750)

“How to be a better person sober” (1412).

(iii) No impact on spirituality or religious beliefs

A reasonable number of participants suggested alternative positions; either there was no impact on their beliefs or various substitutes,

“I don’t believe in God so it was hard looking at it” (1407)

“It put me off religion a lot but gave me an awareness of spiritual awareness” (1028)

“Was willing to accept the ideas but never took on board” (1425)

“Only in that I pondered it more than I usually would. I have not drawn any conclusions” (753)

“No. Being abstinent has lifted the haze though” (144)

“not enough time” (307).

(C) Spiritual practices that helped

Question 10 of the questionnaire asked, “Are there spiritual practices (e.g. prayer, attendance at church) that have helped you during your time in the Programme? If so, what?” The findings include religious responses related to prayer and church; then a whole range of responses related to prayer generically, meditation, wairuatanga (Māori spirituality), and spiritual lifters/classes.

Many of the participants noted the help that they received from **Recovery Church** (113, 114, 125, 149, 517, 522, 525, 527, 520, 327, 500, 511, 513, 1047, 1405, 1409, 1424, 710, 712, 717, 729, 707, 809, 812, 819, 821, 825, 849, 1007, 1010, 1012, 1013, 1014, 1019, 1021, 1038) and bible readings (819, 1014). One participant suggested that Recovery Church added meaning and purpose (520).

Prayer was often noted as being helpful (103, 113, 122, 125, 130, 132, 149, 303, 517, 524, 542, 544, 551, 555, 556, 323, 511, 513, 1406, 1430, 741, 809, 812, 819, 831, 1007, 1010, 1012, 1013, 1016, 1021, 1027, 1031, 1038) and important (135, 101), as was **meditation** (101, 551, 741, 812, 1013, 1016, 1021, 1028, 1032). Others noted specifically, the “**serenity prayer**” (105, 107, 520, 301, 306, 307, 1046, 1051, 1421, 1424, 1429, 821, 1016) as helping them. For example, one participant noted, “I pray in the morning when I wake up and before I go to bed to thank my higher power for my day” (1400). Related to this was a sense of surrendering oneself that many felt, “Surrendering my life and will to my higher power” (1423).

There was something called a “spirit lifter” (502) that happens in the mornings for those living in. This was appreciated by some, as was “spirituality class” (150).

While wairuatanga or Māori spirituality practices, such as “haka” (157) and “karakia” (509) were noted by a small group of participants, this was generally notably absent.

Those who said there were no spiritual practices that were helpful suggested such comments as, “No, but it was nice to be in a loving atmosphere” (144)

(D) Higher power discussions

The final question considered was “How did the discussion about knowledge of a higher power affect your experience in the Programme?” Like many of the answers, responses can be split into 1) explicitly religious and, 2) more generic considerations. Within these groups’ responses were generally positive and focused on letting go/surrendering, a better understanding of a higher power, and a springboard to awareness of spirituality generally.

In the explicitly-religious group, some made the direct link between a higher power and God, as these quotes suggest,

“God is very important to me. I only found him here” (1039)

“it was God that got me here to do this programme” (108)

“I believe in a higher power, a power greater than myself” (502)

“at first I didn’t want to know but now I have open my heart to the Lord” (554)

“...the programme has brought religion back into my life” (513)

“it took me back to wanting to be the person God wants me to be” (130).

As noted by some of these participants, in the programme process, they “found” God or religion, thus it was, in a sense, a conversion experience.

The more generic spiritual responses to the higher power discussion about how this impacted on their programme experience were largely positive,

“moving” (123), “heaps” (113),

“key to enjoy life with my higher power” (122)

“It made me realize there is something bigger than me” (132)

“it helped me to think deeply about it and helped to discover my higher power” (150)

“that I need a higher power” (151)

“made me aware of my own spiritual perspective” (301)

“made me uncomfortable at first but then gave me a feeling of security” (303)

“coming to realize I was powerless over my addiction” (307)

“very great, I didn’t know there was a higher power” (310)

“it gave me hope” (315) & “that my higher power would release me from addiction” (542)

“It put it into perspective” (517)

“couldn’t understand at first but it came slowly that it was something outside myself” (522)

“made myself become more confident that, I can do it” (525)

“Get to realise what a higher power was. It is my kids” (500)

“It helped with mindfulness” (1042)

“It helped me to search for meaning in my life” (720).

Of note was one participant who suggested that the higher power discussions “informed me that Higher Power didn’t mean “god”” (134), suggesting the “god of your understanding” (12 Step definition) approach was useful.

Other participants found the higher power discussion of no consequence (145), saying,

“it didn’t” (103) affect their experience;

Was “tedious, relentless” (120)

“didn’t – confusing – didn’t experience it” (1036)

“confused” (1049) (a number of these participants did not graduate)

“it came and went” (126)

“nothing yet” (128)

“not much I’ve always believed in God” (152)

“I have always believed in a Higher Power” (327)

“I don’t have knowledge of higher power” (1414)

“I did not like the words Higher Power”, prefer “Lord Jesus” (129)

“Didn’t affect me much but I’m ok seeing it as collective consciousness” (144)

“Discussions about Higher power in the programme put me off it and closed my mind to it. NA and people in NA opened my mind again” (1050)

“Wasn’t discussed” (1426)

(E) Various questions: empty or n/a responses

A number of participants wrote that they had no beliefs system or it was ‘NA’, not applicable (102). Similar answers were given to the questions ‘what mattered most?’ and when asked if the programme had impacted on their spirituality or religious beliefs.

However, it was complex at times as one such participant also noted that the programme did alter his or her sense of meaning and purpose in life, suggesting that there was “more to life than drinking” and during his or her time on the programme, “church attendance and prayer” (123) helped.

Other participants had no important belief system but named what mattered most, for example, their family (103, 520), “my kids and my partner” (102), “my kids” (318, 1009).

Some participants responded in a negative fashion, for example, suggesting that what matters didn’t change “despite their [the programme’s] best efforts” (120).

Some participants left most of the spirituality questions empty or wrote no or N/A (not applicable) (134, 137, 140, 303, 306, 307, 310, 315, 533, 702, 322, 1415, 1417, 1418, 1419, 1420).

5.4 Summary

The aims of this evaluation related to spirituality were:

- i. Measure spirituality on Entry to the programme and the End of treatment; does the Bridge Programme increase it – irrespective of outcomes?
- ii. Examine relation between spirituality and outcomes (e.g. is higher spirituality related to better outcomes, low spirituality with non-completion rates?).
- iii. At the End of treatment, use a questionnaire to examine clients’ subjective views of what aspects of spirituality are related to good outcomes

5.4.1 Quantitative findings summary

i & ii. **At baseline, end of treatment, and follow-up**, participants answered the WHOQoL-SRPB questionnaire. Participants’ spiritual beliefs increased significantly at the end of treatment and at follow-up, compared to baseline. There was, however, a significant drop in spiritual beliefs at follow-up compared to end of treatment.

Participants’ ratings of 8 elements of spiritual belief (connection, meaning, awe, wholeness, strength, peace, hope, and faith) increased significantly at the end of treatment and at follow-up, compared to baseline. Participants’ ratings of connection, strength, peace, and faith decreased significantly at follow-up compared to end of treatment.

The WHOQoL-SRPB results, regarding the question, “Does spiritual well-being matter in terms of treatment outcomes?” suggest that an increase in overall spirituality was associated with both a decrease in severity of alcohol use and a decrease in severity of drug use.

An important consideration that may have framed participants’ answers to the open-ended questions is how they understood the concept of spirituality. When asked to choose from 19 definitions of spirituality, participants’ 5 most popular answers were: Faith, Beliefs, Values, Purpose, and Meaning (49%). The least popular answers were: It is meaningless (5%), Other (6%), Blank, N/A (8%), Transcendent (17%), and Religion (20%). These findings are similar to other New Zealand research (Egan et al., 2011) and suggest that ‘faith’ is an important component as part of the spiritual concept, but that religion is largely not. The *average* number of definitions that were chosen to describe spirituality was almost 7 (6.8 exactly), paralleling research in healthcare (Puchalski et al., 2014), and demonstrating that the spiritual concept is plural, broad, and for many, eclectic.

5.4.2 Qualitative findings summary

Central to understanding spirituality are belief systems and ‘what matters most’. Participants were asked two questions aimed to draw out something about their beliefs, what mattered to them, and if these things had changed as they went through the programme process. Key themes included sobriety, religious responses, family/whānau, values, self-awareness, meaning & purpose, contribution, and ambivalence. These are developed under the headings of: **5.3.2 (A)(ii) Spirituality is important and no change**, **5.3.2 (A)(iii) Spirituality is important and changed**, and **5.3.2 (A)(iii) Ambivalence**.

While only a minority, religious participants often framed their answers in terms of God, Jesus or other religious language. The religious theme was evident in the group who said their beliefs had changed through their experience of the programme. There were a number of participants who said that their relationship with God or a higher power had changed, and/or their use of prayer had increased over the programme period.

Non-religious responses make up the majority of answers across all questions. For instance, many participants who said there was no change but referred to what mattered most in terms of sobriety, family, values, or a secular belief system

Most participants said that spirituality was important and it had changed over the time of the programme. Participants’ answers are named under the themes of sobriety, religious lens, self-awareness, meaning and purpose, values, contribution and family/whānau. Many participants suggested their belief system and what mattered was about their sobriety and abstinence. Self-awareness, including a general awareness of a generic spirituality, was an important theme across the questions. One of the strongest themes across all questions was family/whānau, that is, families’ importance in participants’ life, how much they mattered. Values were a theme that covers many of the things that participants noted mattered most or how they framed their beliefs. Many participants noted the programme had clarified, strengthened, affirmed, or even shown them what was important in life. Meaning and purpose was important to many, with a minor theme being contribution. There were a small minority of participants who were not sure either about the questions or what mattered most to them.

Further questions were asked about spiritual beliefs and if they had changed over the programme: “Did the Programme affect your spirituality or religious beliefs? If so, how?” and “Did the Programme alter any sense of meaning or purpose in your life? If so, how?” Some answered from a spiritually religious lens, while more came from a generic spiritual lens. Furthermore, there were those who said yes to the question, who were in the majority, and then finally there were some who said that their spirituality was not affected by the programme. The majority of responses came from those who said the programme had impacted on their spiritual beliefs, or specifically their “sense of meaning and purpose”, without referring to religion. Most participants said their beliefs had been strengthened. A reasonable number of participants suggested alternative positions; or there was no impact on their beliefs

The questionnaire asked about practice: “Are there spiritual practices (e.g. prayer, attendance at church) that have helped you during your time in the Programme? If so, what?” The findings include religious responses related to prayer and church; then a whole range of responses related to prayer

generically, meditation, wairuatanga (Māori spirituality), and spiritual lifters/classes. Many of the participants noted the help that they received from Recovery Church, bible readings, prayer (and specifically the serenity prayer), and meditation.

The final question considered was “How did the discussion about knowledge of a higher power affect your experience in the Programme?” Like many of the answers, responses can be split into 1) explicitly religious and 2) more generic considerations. Within these groups, responses were generally positive and focused on letting go/surrendering, better understanding of a higher power and a springboard to awareness of spirituality generally. Lastly of note, a number of participants wrote ‘NA’ or not applicable for many or all questions.

5.5 Discussion

“it is becoming increasingly difficult to exclude spirituality as a possible factor in the addiction recovery process for many individuals” (Stewart, 2008, p.402).

“alcohol is stopping me liv[ing] fiscally, spiritually” (participant 129)

Both the literature and the evaluation findings, as indicated by the two quotes above, suggest spirituality is important for those recovering from alcohol and other drug dependency. The literature (Flannelly et al., 2002; Joint Commission on Accreditation of Healthcare Associations, 2005; Tanyi, 2002) and the results from the evaluation suggest a broad understanding of spirituality is held by the majority of clients, with a small, but committed, religious client group equating it more directly as religion.

Spirituality is understood by many of the existing studies as a protective factor (Hodge, 2001; Larson & Larson, 2003; Miller, 1999; Ritt-Olson et al., 2004) and one that improves AOD outcomes (Avants et al., 2001). It is fair to propose that such findings are confirmed in this evaluation with both the WHOQoL-SRPB results and the qualitative findings suggesting improved outcomes over the programme period.

There is some criticism of the 12 Step programme’s religious spiritual focus (Galanter, 2007). However, the literature also notes that this AA approach may be a springboard into exploration of personal spirituality (Kelly et al., 2011) that is useful in the recovery process. The findings of this programme evaluation, particularly related to the positive changes regarding spirituality and the spiritual practices (such as Recovery Church, prayer, and medication), concur with the literature, affirming the programme as an opportunity for spiritual growth that has a positive impact on recovery, at least for the evaluation period.

Why spirituality is important in AOD recovery is less well known. There is speculation that such addiction is a response to a personal and/or societal spiritual void (McCoy et al., 2005) or vacuum. One client suggested “I have found some of my soul” (310), which implies it was lacking. This is an area that was not covered in the evaluation but could be further explored by asking questions around, is there spiritual pain, distress, or a void that is being attempted to fill with the misuse of AOD? A further limitation of the evaluation was the lack of inclusion of specifically culturally-related questions, for example, questions asking participants about tikanga Māori aspects of the programme.

Based on the evaluation, the Bridge Programme, which is named on the website as a “distinctly spiritual journey” and “a practical expression of its [Salvation Army] Christian based love and concern for all people”, lives up to its aims. One could argue that more focus on generic spiritual approaches are warranted; which might include spiritual care related to nature, culture/wairuatanga, the arts, sport, family/whānau and so on, things that provide meaning and purpose, a reason for living free of the fog of AOD.

5.6 References

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CHAPTER 6.

Conclusion and Recommendations

6.1 Overall Conclusion:

Our evaluation of The Salvation Army's Bridge Programme Model of Treatment was conducted via four separate research components: 1) the literature review in relation to evidence based treatment practice; 2) the prospective study examining Bridge Programme treatment outcomes; 3) the systematic review comparing Bridge Programme treatment outcomes to other published treatment outcome studies; and 4) the research examining the spirituality aspect of the programme. Taken together, the key findings of this evaluation provide strong support for the overall effectiveness of the Bridge Programme Model of Treatment.

6.2 Recommendations:

6.2.1 That The Salvation Army continues to measure Bridge Programme treatment outcome data to provide ongoing evidence of the effectiveness of the Programme. In relation to this ongoing measurement of treatment outcome, the following points are specified:

- a. That any treatment outcome measures used are psychometrically-validated;
- b. That treatment outcomes measured include primary outcomes related to reduction in substance use and severity of substance use, as well as secondary outcomes related to functional outcomes; physical and mental health, consequences of substance use, vocational and criminal status, and quality of life;
- c. That the battery of outcome measures to be used in any ongoing evaluation be limited to 5 or 6 measures maximum with a time burden of less than an hour in total,
- d. Given the variety of psychometrically-validated measures available, the strengths and limitations of each measure, and the need to ensure that the measure chosen captures the outcome that is being examined, careful consideration needs to be given to which measures are chosen for use in the battery. The research team are happy to discuss the issue of measures further with The Salvation Army and to assist with the development of a short battery of measures to be used for ongoing evaluation;
- e. That the battery of assessment becomes part of the initial comprehensive assessment that is carried out at the Bridge Programme when the client enters the treatment programme (i.e., after detox if detox was necessary, and at the start of Stage 1 or 2 depending on how the client enters the programme). If the initial comprehensive assessment is conducted elsewhere (i.e., by another provider), or is not conducted (e.g., some Stage 1 treatment did not begin with an overall comprehensive assessment), then we recommend that the battery of assessment be given prior to treatment commencement;
- f. That the battery of assessment is given at specific time periods so that any change in outcomes related to the treatment programme can be captured. That is, the battery of assessment be given prior to treatment, end of treatment (whether treatment is completed or not), and at a follow-up time point. For practical purposes, follow-up should

occur either 3 or 6 months following the end of treatment, and again at one year. Ideally, a follow-up at 2 or 5 years would provide additional information about the effectiveness of the programme over the long term. However, if follow-up is deemed impractical or viewed as asking too much of clients, then a 1-month follow-up could easily be incorporated into the programme via standard practice that all clients have at least one follow-up appointment after one month of being back in the community. A follow-up appointment is also likely to be protective for the client in terms of getting additional support soon after returning to normative community contexts;

- g. To gather outcome data, The Salvation Army needs to consider their process around signed informed consent to treatment, and ensure that the informed consent document tells the client that non-identifiable data will be collected for research or programme evaluation purposes. At informed consent, it could also be identified that The Salvation Army would like to contact and follow-up on clients after treatment end (if this is what The Salvation Army decides to do). If clients are agreeable to follow-up, the research team would suggest getting not only the client's follow-up contact details but also contact details of two significant others. This will assist in locating the client at follow-up if the client's contact details have changed.

6.2.2 That The Salvation Army SAMIS database be used for collection of the outcome data. The following points are made in relation to data collection on the SAMIS database:

- a. The Salvation Army invests time and resources into ensuring that data is systematically collected and entered onto the SAMIS database at all centres or that if some centres do not have the personnel, that the data is collected and provided to a central centre for input;
- b. To assist with this systematic collection and entry of data, that The Salvation Army standardises and in some way manualises exactly what is to be done and when it is to be done. The Administrator's Manual that the research team created for the current evaluation could be changed and used to assist in this manualisation process. Bridge Programme personnel will also need some training related to these standardised data collection processes;
- c. That specific personnel are responsible for checking the fidelity of the data collection and entry process at each of The Salvation Army Centres.

We emphasise these points because when we began the evaluation, we had hoped to use existing data from SAMIS but found it too variable in terms of what was entered and what was collected (or not collected). We were therefore unable to incorporate existing data from SAMIS in our evaluation.

6.2.3 The present evaluation did not evaluate the cultural sensitivity and the acceptability of the Bridge Programme for Māori and Pacific populations. The research team strongly advocates that cultural acceptability of the Bridge Programme be examined using mixed-methods approaches with Key Māori stakeholders involved and Māori and Pacific Islander researchers conducting or leading the research. The following point is also noted but may already be in place throughout The Salvation Army Centres:

- a. To ensure that the Bridge Programme is in line with Ministry of Health requirements, The Salvation Army should ensure that all frontline staff have training in cultural competence, particularly with relevance to Māori and Pacific populations.

6.2.4 The present evaluation confirmed that the Bridge Programme's treatment approaches were evidence-based and recognised in the research as effective treatment methods. It was not within the scope of the present evaluation to examine whether these evidence-based treatment approaches were used consistently across The Salvation Army centres nor the fidelity of their use. The following points are made in relation to checking the fidelity of the treatment approach used across centres:

- a. All components of the Bridge Programme should be delivered based on evidence-based guidelines, using CRA, CBT, or TSF approaches. It is recommended that The Salvation Army invest resources into checking that all aspects of the Bridge Programme are based on evidence-based practices, both at a theoretical level, and a practical, specific components level;
- b. All staff should be appropriately qualified and trained to deliver CRA, CBT, and/or TSF as required.

6.2.5 The present evaluation demonstrated that the spiritual components of the Bridge Programme were widely valued and deemed helpful. The following points are made in relation to the spiritual aspect of the programme:

- a. That the spiritual component is consistently included across all centres and programmes;
- b. That spirituality is explicitly named in a broad and inclusive way;
- c. That Bridge Programme staff have regular professional development to further understand this broad understanding and approach to facilitating spiritual well-being;
- d. That additional generic spiritual approaches be considered for inclusion in the Bridge Programme. These may include spiritual care related to nature, culture/wairuatanga, the arts, sport, family/whānau as examples. The research team is happy to discuss these issues further with The Salvation Army in terms of adopting additional approaches.

6.2.6 Additional points to consider for future Bridge Programme treatment practice:

- a. The present evaluation revealed that some participants were discharged due to substance use while on the programme. Recent literature suggests that, to maximise treatment for those with substance-use problems, those who use substances or relapse during treatment should continue to be provided treatment. The Salvation Army could consider an alternative method for addressing substance use and relapse by Bridge Programme clients.
- b. Less intensive interventions have good support in the literature, and are sometimes considered equivalent to more intensive interventions. On the other hand, some research suggests that more intensive treatments are best for more severe populations such as many of those presenting at the Bridge Programme for treatment. Future research could investigate whether the Bridge Programme could be tailored to be less intensive, at least for

some participants. Aftercare would be an important component of a shorter, active treatment programme.

- c. Recent research has considered the benefits of dual treatment approaches in relation to persons who have both substance use and mental health disorders. The dual treatment approach includes incorporating components of treatment related to the mental disorder into the substance-use disorder treatment programme. We recommend The Salvation Army considers taking this approach.

APPENDICES

Chapter 3 Appendices: Evaluation of the Bridge Programme

Appendix 3.1 ASI-MV New Zealand Conversion

ASI Questionnaire Handout Putting things into a New Zealand context

Ethnicity (Tell Us About Yourself section)	
Wording used in the questionnaire	NZ equivalent
White (not Hispanic)	Pakeha / European New Zealander
Other ethnicities listed include: Chinese, Filipino, Japanese, Korean, Vietnamese, Samoan, Other Pacific Islander	Select as appropriate
Other	Any other ethnicity not listed
Education (Employment section)	
Wording used in the questionnaire	NZ equivalent
6 th grade or less	Primary school
7 th grade	Year 7, Form 1, intermediate school
8 th grade	Year 8, Form 2, intermediate school
9 th grade	Year 9, 3 rd Form, secondary school
10 th grade	Year 10, 4 th Form, secondary school
11th grade	Year 11, 5 th Form, NCEA level 1, School Certificate
Graduated High School or received G.E.D.	Year 12, 6 th Form, NCEA level 2, 6 th Form Certificate Year 13, 7 th Form, NCEA Level 3, Bursary
1 year of college	1 year of university
2 years of college	2 years of university
3 years of college	3-year Bachelor's Degree
4 years of college or Bachelor's degree	Honours Degree or 4-year Bachelor's Degree
1 year of graduate education	1 year post-graduate certificate
2 years of graduate education or a Master's	2 year post-graduate certificate or diploma or Master's Degree
3 years of graduate education	3 year post-graduate certificate or diploma or PhD
4 years of graduate education or a Ph.D. M.D. or J.D.	Medical Degree, Dental Degree
Welfare Benefits	
Wording used in the questionnaire	NZ equivalent
In the Medical Health section	
Money from government, insurance company, former employer for physical disability	ACC Disability Allowance Supported Living Payment (formerly Invalid's Benefit)
In the Employment section	
Unemployment Compensation	Job Seeker Support (formerly Unemployment Benefit)
Public Assistance, Welfare or food stamps	Emergency Benefit Job Seeker Support (formerly Sickness Benefit) Supported Living Payment (formerly Invalid's Benefit) Working for Families
Pension, Disability, Worker's Compensation, Social Security or Veteran's Benefit	New Zealand Superannuation Disability Allowance Veteran's Pension ACC
In the Mental Health section	
Psychiatric Disability	ACC Disability Allowance Supported Living Payment (formerly Invalid's Benefit)

Slang explained: "licking" the habit can be translated as "kicking" the habit.

Drug Types (Your Use of Alcohol and Drugs section)		
Wording used in the questionnaire	Substance class	Commonly used substances

Drug Types (Your Use of Alcohol and Drugs section)		
Wording used in the questionnaire	Substance class	Commonly used substances
Heroin	Opioids	Heroin (diamorphine)
Methadone/Buprenorphine (Subutex/Suboxone)	Opioids	Methadone (liquid or tabs) Buprenorphine (as in Suboxone)
Other Opiates or painkillers	Opioids	Codeine (including: Panadeine, Neurofen Plus) DHC Continus (dihydrocodeine) Morphine (as MST, Sevredol, m-Eslon) Oxycodone (Oxycontin, Oxynorm) Fentanyl (Durogesic patch) Tramadol Pethidine Opium Homebake (acetylated or 'cooked-up' lower potency opioids to make heroin)
Barbiturates (very unlikely to be used in NZ)		Phenobarbital (for epilepsy) (very unlikely to be used in NZ)
Sedatives, tranquilisers or sleeping pills	Sedatives, tranquilisers or sleeping pills	Benzodiazepines: Alprazolam (Xanax) Diazepam (Valium, Stesolid Rectal Tube) Clonazepam (Rivotril) Lorazepam (Ativan, Lorapam, Lorzem) Midazolam (Hypnovel) Nitrazepam (Mogadon, Nitrados) Oxazepam (Ox-Pam, Serepax) Temazepam (Euhypnos, Somapan) Triazolam (Halcion) Zopiclone (Apo-Zopiclone)
Cocaine or Crack	Amphetamines or uppers	Cocaine (coke, crack)
Amphetamines or uppers	Amphetamines or uppers	Methamphetamine (P, meth, crystal, ice, crank) Dexamphetamine (speed) Methylphenidate (Ritalin, Rubifen, Concerta) Ecstasy (MDMA) BZP (benzylpiperazine) Duramine (Umine)
Marijuana or hashish	Cannabinoids	Plant cannabis (including hydroponic, skunk), marijuana Hashish (resin) Hash oil
Hallucinogens like LSD or acid, PCP or angel dust	Hallucinogens	LSD (acid, trips) Psilocybin (magic mushroom) Mescaline (cactus) Datura DMT (dimethyltryptamine), AMT Dextromethophan (DXM) Research chemicals (e.g. 2Ci, MDMEO, STP) Salvia (Mexican tripping weed)
Inhalants, like glue, gasoline, nitrous oxide	Inhalants	Glue Petrol Solvents (including furniture polish) Nitrous oxide (laughing gas)
	Others	Steroids Amylnitrite (Rush) Kava Synthetics (Spice, K2, Amsterdam Cafe, WTF, Aroma etc)

Appendix 3.2 Class categorisation of drugs

Category	Description
1	Marijuana, Cannabis, Weed, Pot, Dope, THC, Hashish
2	Meth, P, Speed, Ecstasy, Ritalin (uppers)
3	Synthetics (legal highs)
4	Cocaine, Crack, Coke
5	Morphine, Heroin, Opioids, Methadone, Codeine, OxyContin, Tramadol, DHC
6	LSD, Acid, Ice (Hallucinogens)
7	Other, pills, left blank, Nitrates (poppers)
8	Benzos (sedatives) Clonazepam (Rivotril), Diazepam, Valium
9	Solvents

Appendix 3.3 Recruitment numbers per Centre

Number of clients entering the Bridge Programme during the study period, being invited to participate in the study and consenting to participate.

Centre	Number of clients entering Bridge Programme during study period	Number of clients invited to participate	Number of clients consenting to participate	Number of participants included in data analysis
Auckland	176	104	63(60.6%)	61
Christchurch	74	54	33 (61%)	30
Dunedin	55	52	52 (100%)	44
Manukau	106	102	75 (73.5%)	73
Waikato	131	105	62 (59.0%)	54
Waitakere	105	61	29 (47.5%)	28
Wellington	missing	missing	68	35
TOTAL			382	325

Appendix 3.4 Participants by treatment length

Participants included in data analysis by treatment length classification

	Total	Male	Female	Gender unknown	Mean age (yrs)	Age range (yrs)
Graduated from Bridge	182 (56%)	123	58	1	40.5	20.2 - 65.4
Did not graduate but completed more than 28 days of Stage 2 treatment	43 (13.2%)	23	20	-	40.7	15.1 - 72.8
Did not graduate and completed less than 28 days but more than 0-2 session of Stage 2 treatment	29 (8.9%)	16	13	-	35.4	20.4 - 58.8
Completed 0-2 days of Stage 2 treatment	7 (2.2%)	6	1	-	37.5	21.5 - 55.6
Did not enter Stage 2 treatment	54 (16.6%)	35	19	-	37.7	20.0 - 62.7
Unconfirmed (data not returned)	10 (3.1%)	8	2	-	38.6	21.3 – 59.6
TOTAL	325	211	113	1	39.5	15.1 - 72.8

Appendix 3.5 Reasons for leaving the programme

Reasons for leaving the programme for those who did not complete at least 28 days treatment (i.e., those who are considered to not have experienced a 'dose' of treatment)

Centre	Client did not complete treatment	Client chose to withdraw	Client was asked to leave	Client transferred to alt. healthcare	Other
Auckland	17	9 (52.9%)	4 (23.5%)	0	4 (23.5%)
Christchurch	2	0	2 (100%)	0	0
Dunedin	11	9 (81.8%)	1 (9.1%)	1 (9.1%)	0
Manukau	37	19 (51.4%)	3 (8.1%)	2 (5.4%)	13 (35.1%)
Waikato	16	8 (50%)	6 (37.5%)	2 (12.5%)	0
Waitakere	9	5 (55.6%)	4 (44.4%)	0	0
Wellington	8*	2	0	0	0
TOTAL	100	52	20	5	17

*For 6 participants, we are missing information on why they did not complete treatment.

Appendix 3.6 Specific reasons for clients choosing to withdraw from treatment or being asked to leave the Bridge Programme

Client chose to withdraw:	Total
- Personal reasons (job, childcare; wife had baby)	2
- No engagement in programme	3
- Programme not for them	2
- Opted to go to alternative care (e.g., CADS)	2
- No reason given	43
TOTAL	52

Client was asked to leave:	
- Using on site / programme	10
- Possession of contraband	1
- Inappropriate behaviour	4
- Not an appropriate treatment match	1
- Discharged under Section 9	1
- Sent home to detox	1
- Undisclosed issues at entry	1
- Legal issues	1
TOTAL	20

Appendix 3.7 Description of Data Analyses

Model Fitting

To analyse the raw data for each outcome variables (severity of substance use, consequences of use, social functioning, physical health, psychiatric health, quality of life, employment status, and spiritual beliefs), Dr Claire Cameron, the Biostatistician on our research team, fitted a series of linear mixed models in all cases EXCEPT ONE*, with a random effect on centre and individual. Each model included:

- Phase (1,2 or 3),
- Use classification:

'alcohol', 'alcohol and single drug' and 'alcohol and multiple drug' for the alcohol model and

'Single drug', 'multiple drug', 'alcohol and single drug' and 'alcohol and multiple drug' for the drug users,

- Gender
- Age category (because the continuous variable was clearly not linearly related to the outcome)

<=35,

35-(55)

55-(75)

- Treatment length classification:

Completed the treatment

Did not graduate but completed more than 28 days of Stage 2 treatment.

There were no interaction terms included in the models for the sake of answering the question. Gender and Age were included because this is good practice in an epidemiological sense. The analyses are limited to people who were referred for alcohol abuse (in the alcohol models) and drug abuse (in the drug models). Only people that completed the program or who didn't graduate but did more than 28 days in Stage 2 treatment were included.

*The exception to this was the question on perceived quality of life, the "WHOQoL BREF Q1_Life." which uses a scale that goes from 1 to 5. In that case, we used an ordinal logistic mixed model (with a random effect on centre and individual) which allowed for the fact that the outcome was not continuous. The terms in the model, however, were the same as those described above.

Appendix 3.8 Days of use

Days of alcohol and drug use for user group for participants who completed 28 or more days of stage 2 treatment

	Days of use in past 28 days (ADOM), mean (Std. Error)		
	Baseline	End of treatment	Follow-up
ALCOHOL use	9.95 (0.76) days CI: 8.46 – 11.44 (n = 183)	0.28* (0.11) days CI: 0.07 – 0.50 (n = 142)	2.70*, ** (0.57) days CI: 1.56 – 3.83 (n = 92)
CANNABIS use	8.27 (1.07) days CI: 6.14 – 10.41 (n = 85)	0.05* (0.03) days CI: -0.01 – 0.10 (n = 63)	1.51* (0.75) days CI: 0.01 – 3.02 (n = 41)
AMPHETAMINES use	6.88 (1.27) days CI: 4.33 – 9.43 (n = 49)	0.11* (0.06) days CI: -0.02 – 0.24 (n = 37)	0.44* (0.24) CI: -0.05 – 0.93 (n = 25)
SYNTHETICS use	4.18 (2.17) days CI: -0.42 - 8.77 (n = 17)	0 (0) days CI: -- (n = 11)	0 (0) days CI: -- (n = 8)

Appendix 3.9 Mean scores and confidence intervals for participant involvement with the law

Mean scores (sd) on Q41 and Q42 of the DrInC and InDUC at baseline, end of treatment, and follow-up for those participants who completed 28 or more days of treatment.

Criminal status:			
	Baseline	End of Treatment	Follow-up
<i>Users of alcohol</i>	Arrests for DUI (alcohol) DrInC Q41: 0.58 (1.08) CI: 0.04 – 0.76 n = 134 Trouble with the law DrInC Q42: 0.99 (1.29) CI: 0.77 – 1.21 n = 134	Arrests for DUI (alcohol) DrInC Q41: 0.09 (0.50) CI: 0.00 – 0.18 n = 109 Trouble with the law DrInC Q42: 0.11 (0.53) CI: 0.01 – 0.21 n = 109	Arrests for DUI (alcohol) DrInC Q41: 0 (0) CI: NA n = 73 Trouble with the law DrInC Q42: 0.03 (0.23) CI: -0.02 – 0.08 n = 73
<i>Users of drugs</i>	Arrests for DUI (drug) InDUC Q41: 0.24 (0.72) CI: 0.09 – 0.39 n = 91 Trouble with the law InDUC Q42: 0.84 (1.15) CI: 0.60 – 1.08 n = 91	Arrests for DUI (drug) InDUC Q41: 0.04 (0.36) CI: -0.04 – 0.12 n = 69 Trouble with the law InDUC Q42: 0.06 (0.38) CI: -0.03 – 0.15 n = 69	Arrests for DUI (drug) InDUC Q41: 0 (0) CI: NA n = 46 Trouble with the law InDUC Q42: 0.07 (0.33) CI: -0.03 – 0.17 n = 46

Appendix 4.1 Boolean search terms used

MEDLINE (including Embase and PsycInfo)

-693 articles

-672 with duplicates removed

-66 potentials

1. exp alcohol/
 2. exp drug/ or exp drug abuse/
 3. 1 or 2
 4. (treatment* or intervention* or intervention type).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
 5. (RCT or randomised controlled trial or randomized controlled trial or controlled clinical trial or CCT).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
 6. exp quasi experimental study/
 7. 5 OR 6
 8. (community or residential).mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword]
- 12. 3 and 4 and 7 and 8**

CINAHL

Search 1-

#	Query	Limiters/Expanders	Last Run Via	Results
S7	S3 AND S4 AND S5 AND S6	Limiters - Human; Language: English; Age Groups: Adult: 19-44 years Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	85
S6	S1 OR S2	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	351,681
S5	TX RCT OR TX randomised controlled trial OR TX randomized controlled trial OR TX CCT OR TX controlled clinical trial OR TX quasi	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	48,201
S4	TX community OR TX residential	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	205,600
S3	MW treat* OR MW interven* OR MW intervention type	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	156,523
S2	MW drug*	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	328,147
S1	MW alcohol*	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases	27,725

			Search Screen - Advanced Search Database - CINAHL	
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85 articles
4 potentials

Search 3-

S5	TX community reinforcement approach	Limiters - Human; Language: English; Age Groups: Adult: 19-44 years Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	5
S4	S1 OR S3	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	351,681
S3	MW drug*	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	328,147
S2	MW RCT OR MW randomised controlled trial OR MW randomized controlled trial OR MW CCT OR MW controlled clinical trial OR MW quasi	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	6,168
S1	MW alcohol*	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	27,725

5 articles
2 potentials

Search 3-

S6	S2 AND S4 AND S5	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	1
S5	(MM "Alcoholics Anonymous"# OR "TX 12 Step OR TX AA OR TX alcoholics anonymous" OR #MH "Alcohol Rehabilitation Programs+"#	Limiters - Human; Language: English; Age Groups: Adult: 19-44 years Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	170
S4	S1 OR S3	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	351,681
S3	MW drug*	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	328,147
S2	MW RCT OR MW randomised controlled trial OR MW randomized controlled trial OR MW CCT OR MW controlled	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	6,168

	clinical trial OR MW quasi			
S1	MW alcohol*	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	27,725

1 article

0 potential

Appendix 4.2 Full list and review of selected studies

Selected and reviewed articles:

1. Brown, T. G., Dongier, M., Ouimet, M. C., Tremblay, J., Chanut, F., Legault, L., & Ng, M. (2010). Brief motivational interviewing for DWI (driving while impaired) recidivists who abuse alcohol and are not participating in DWI intervention: A randomised controlled trial. *Alcohol Clinical & Experimental Research*, 34(2), 292-301.
2. Campbell, A. N. C. et al. (2014). Internet-delivered treatment for substance abuse: A multisite randomised controlled trial. *American Journal of Psychiatry*, 171, 683-690.
3. Carroll, K. M., Ball, S. A., Nich, C., Martino, S., Frankforter, T. L., Farentinos, C., Kunkel, L. E., Mikulich-Gilbertson, S. K., Morgenstern, J., Obert, J. L., Polcin, D., Snead, N., & Woody, G.E. (2006a). Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: A multisite effectiveness study. *Drug and Alcohol Dependence*, 81, 301-312.
4. Carroll, K. M., Easton, C. J., Nich, C., Hunkele, K. A., Neavins, T. M., Sinha, R., Ford, H. L., Vitolo, S. A. Doebrick, C. A., & Rounsaville, B. J. (2006b). The use of contingency management and motivational/skills-building therapy to treat young adults with marijuana dependence. *Journal of Consulting Psychology*, 74(5), 955-966.
5. COMBINE Study: COMBINE Study Research Group (2006). Combined pharmacotherapies and behavioural interventions for alcohol dependence. The COMBINE study: A randomized controlled trial. *JAMA*, 295(17), 2003-2017.
6. LoCastro, J. S., Youngblood, M., Cisler, R. A., Mattson, M. E., Zweben, A., Anton, R. F., & Donovan, D. M. (2009). Alcohol treatment effects on secondary nondrinking outcomes and quality of life: the COMBINE study. *Journal of Studies on Alcohol and Drugs*, 70(2), 186-196.
7. Copeland, J., Swift, W., Roffman, R. & Stephens, R. (2001). A randomised controlled trial of brief cognitive-behavioral interventions for cannabis use disorder. *Journal of Substance Abuse Treatment*, 21, 55-64.
8. Drummond, C., Coulton, S., James, D., Godfrey, C., Parrott, S., Baxter, J., Ford, D., Lervy, B., Rollnick, S., Russell, I. & Peters, T. (2009). Effectiveness and cost-effectiveness of a stepped care intervention for alcohol use disorders in primary care: pilot study. *The British Journal of Psychiatry*, 195, 448-456.
9. Greenfield, S. F., Trucco, E. M., McHugh, R. K., Lincoln, M. & Gallop, R. J. (2007). The Women's Recovery Group Study: A Stage I trial of women-focused group therapy for substance use disorders versus mixed-gender group drug counselling. *Drug and Alcohol Dependence*, 90, 39-47.
10. *Project MATCH Research Group - Matching Alcoholism Treatment to Client Heterogeneity*

Project MATCH: Rational and methods for a multisite clinical trial matching patients to alcoholism treatment. *Alcoholism: Clinical and Experimental Research*, 17(6), 1993.

Matching alcohol treatments to client heterogeneity: Project MATCH post treatment drinking outcomes. *Journal of Studies on Alcohol*, 58(1), 7-26, 1997.

Matching patients with alcohol disorders to treatments: Clinical implications from Project MATCH. *Journal of Mental Health*, 7(6), 589-6002. 1998.

Matching alcohol treatments to client heterogeneity: Project MATCH three-year drinking outcomes. *Alcoholism: Clinical and Experimental Research*, 22(6), 1300-1311. September 1998.

Matching alcoholism treatments to client heterogeneity: Treatment main effects and matching effects on drinking during treatment. *Journal of Studies on Alcohol*. November 1998.

A longitudinal model of intake symptomatology, AA participation and outcome: Retrospective study of the Project MATCH outpatient and aftercare samples. *Journal of Studies on Alcohol*. November 2001.

Cutler, R. B., & Fishbain, D. A. (2005). Are alcoholism treatments effective? The project MATCH data. *BMC Public Health*, 75(5),

11. McCrady, B. S., Epstein, E. E., & Hirsch, L. S. (1999). Maintaining change after conjoint behavioural alcohol treatment for men: outcomes at 6 months. *Addiction*, 94(4), 1381-1396.
 12. McDonell, M. G., Srebnik, D., Angelo, F., McPherson, S., Lowe, J. M., Sugar, A., Short, R. A., Roll, J. M., & Ries, R. K. (2013). Randomised controlled trial of contingency management for stimulant use in community mental health patients with serious mental illness. *American Journal of Psychiatry*, 170(1), 94-101.
 13. Morgenstern, J., Blanchard, K. A., Morgan, T. J., Labouvie, E., & Hayaki, J. (2001). Testing the Effectiveness of cognitive-behavioural treatment for substance abuse in a community setting: Within treatment and post-treatment findings. *Journal of Consulting and Clinical Psychology*, 69(6), 1007-1017.
- Morgenstern, J. Bux, D. A., Labouvie, E., Morgan, T., Blanchard, K. A., & Muench, F. (2003). Examining mechanisms of action in 12-Step community outpatient treatment. *Drug and Alcohol Dependence*, 72, 237-247.
14. Riper, H., Kramer, J., Smit, F., Conijn, B. Schippers, G., & Cuijpers P. (2007). Web-based self-help for problem drinkers: a pragmatics randomized trial. *Addiction*, 103, 218-227.
 15. Rosenblum, A., Magura, S., Kayman, D. J., & Fong, C. (2005). Motivationally enhanced group counselling for substance users in a soup kitchen: A randomised clinical trial. *Drug & Alcohol Dependence*, 80, 91-103.
 16. Rosenblum, A., Matusow, H., Fong, C., Vogel, H., Uttaro, T., Moore, T. L., & Magura, S. (2014). Efficacy of dual focus mutual aid for persons with mental illness and substance misuse. *Drug and Alcohol Dependence*, 135, 78-87.
 17. Shakeshaft, A. P., Bowman, J. A., Burrows, S., Doran, C., M., & Sanson-Fisher, R., W. (2002). Community-based alcohol counselling: a randomised clinical trial. *Addiction*, 97, 1449-1463.

Summary of selected articles:

Reviewed Study 1:

Title	Brown, T. G., Dongier, M., Ouimet, M. C., Tremblay, J., Chanut, F., Legault, L. & Ng, M, (2010). Brief motivational interviewing for DWI (driving while impaired) recidivists who abuse alcohol and are not participating in DWI intervention: A randomised controlled trial. <i>Alcohol Clinical & Experimental Research</i> , 34(2), 292-301.
Participants	Canada. Male & female recidivists with drinking problems not currently engaged in DWI intervention. Exclusion criteria included substance use disorder requiring medical withdrawal and psychiatric conditions that would contraindicate participation. Inclusion criteria required participants to be 18 years or over. Mean age 45.6 – 46.6 years.
Treatment program	Randomly assigned to one of: (1) information-advice control group (2) Brief (30min) Motivational Interviewing (BMI) group
Measures	Measures taken at screening/baseline (Time 0), 6-month (Time 1) & 12-month (Time 2) follow-up <ul style="list-style-type: none"> – Alcohol Use Diagnostic Identification Test (AUDIT) – Drug Abuse Screening Test (DAST) – Michigan Alcoholism Screening Test (MAST) – baseline consequences of lifetime alcohol misuse – DSM-IV classification of alcohol use dependence via structured Composite International Diagnostic Interview – Breathalyzer & urine tests – Clinical Institute Withdrawal Assessment for Alcohol (CIWA-AR) scale – Computerised version of the Timeline Follow Back (TLFB) – alcohol use over past 180 days – MacAndrew Alcoholism Scale from the Minnesota Multiphasic Personality Inventory-2 (MMPI-Mac) – Readiness to Change Questionnaire (RTCQ) – Client Satisfaction Scale – Marlowe-Crowne Social Desirability Scale – validity of self-report – Motivational Interviewing Treatment Integrity Coding protocol (MITI version 2) – assess adherence to intervention protocols – Risky drinking days defined as 3 or more standard drinks per day for males and 2 or more per day for females
Outcomes (that can be compared with our study)	<i>Overall:</i> both treatment groups showed significantly less risky drinking at 6- and 12-month follow-ups, only the BMI group showed continued reduction in risky drinking from 6- to 12-month follow-ups. This was consistent with reduction in a biomarker of alcohol abuse and scores on the MMPI-Mac scale.

Extraction from Table 1 and narrative

	Baseline		6 month follow-up		12 month follow-up	
	Control	BMI	Control	BMI	Control	BMI
<i>Substance use:</i>						
- MAST	50.2 (39.8)	62.6 (51.0)				
- MMPI Mac	26.0 (5.6)	26.1 (4.7)	0.1 (4.0) (change score)	1.2 (3.6) (change score)	1.1 (4.4) (change score)	0.5 (3.7) (change score)
- AUDIT	20.8 (8.0)	21.8 (8.7)				
- DAST	5.5 (6.1)	4.9 (5.6)				
<i>Days of use in past 180:</i>						
- Alcohol only	58.4 (55.8)	56.7 (54.8)				
- Drugs only	14.3 (34.1)	12.3 (29.5)				
- Alcohol & Drugs	29.3 (45.0)	33.5 (45.2)				
- Standard drinks per week	22.8 (21.2)	24.5 (22.2)				
- percent days of risky drinking	47.7 (31.4)		39.0 (30.7)*		36.9 (32.6)*	
<i>Stage of change for alcohol:</i>						
- Pre-contemplation	5.9%	2.4%				
- Contemplation	58.8%	61.2%				
- Action	35.3%	36.5%				
<i>Alcohol dependence diagnosis:</i>						
- Lifetime diagnosis	79.3%	85.0%				
- Current diagnosis	48.9%	54.5%				

* significantly different to baseline

- Percent of days of risky drinking - significant effect of time found – significant reductions from baseline to both 6-month and 12-month follow-up, but not from 6-month to 12-month follow-up.
- MMPI-Mac – (self-report measures of alcohol problems) change scores showed significant increase from baseline to 6-month follow-up but not from baseline to 12-month follow-up.
- Readiness to Change - Progression from a lower to a higher stage of readiness to change from baseline to 6-month follow-up was observed in 26.8% of the overall sample. This change was not related to intervention.

Reviewed Study 2:

Title	Campbell, A. N. C., et., al. (2014). Internet-delivered treatment for substance abuse: A multisite randomised controlled trial. <i>American Journal of Psychiatry</i> , 171, 683-690.
Participants	USA N=507 (male & females) entering 10 outpatient addiction treatment programs. Exclusion criteria included those being treated with opioid replacement. Inclusion criteria included use of illicit substances (alcohol could be the primary problem but patients had to have used at least one illicit drug as well). No mention of psychosis was made as an inclusion or exclusion criteria. Inclusion criteria required participants to be 18 years or over. Mean age 34.9 years.
Treatment program	Programs had to offer at least two face-to-face therapeutic group or individual sessions per week (most offered 2 to 6 sessions per week) for 12 weeks. <i>Randomly assigned to one of:</i> (1) treatment as usual (individual & group counselling) (2) treatment as usual + TES (intervention substitutes for about 2hrs of standard care per week). TES = 62 computerised interactive modules & prize-based motivational incentives
Measures	Measures taken at Baseline, then twice a week during 12-week treatment & at 3-month and 6-month follow-up visits: – Abstinence from drugs and heavy drinking measured by twice-weekly urine drug screens & self-report (timeline follow-back calendar method) – Time to dropout from treatment
Outcomes (that can be compared with our study)	<i>Overall outcomes:</i> Those in the TES group had a lower drop-out rate. Those receiving TES had great odds of abstinence at the end of treatment – this was more pronounced for those who had a positive urine or breath alcohol screen at baseline. Abstinence at baseline predicted abstinence at end of treatment. The effect of TES was not significant after the 3- or 6-month delay. No data reported to compare with Salvation Army study. Some descriptive baseline data provided including ‘primary substance’ if need as comparison to Salvation Army study participants. No baseline AUDIT or equivalent reported – 54% abstinence reported at baseline.

Reviewed Study 3:

Title	Carroll, K. M., Ball, S. A., Nich, C., Martino, S., Frankforter, T. L., Farentinos, C., Kunkel, L. E., Mikulich-Gilbertson, S. K., Morgenstern, J., Obert, J. L., Polcin, D., Snead, N. & Woody, G.E. (2006a). Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: A multisite effectiveness study. <i>Drug and Alcohol Dependence</i> , 81, 301-312.
Participants	USA N=423 substance users entering outpatient treatment (in 5 community based settings). A total of 640 individuals were screened. Exclusion criteria included those who were not sufficiently psychiatrically stable to participate in treatment (N=11, 6%) (no specific definition of psychiatric stability was given). Inclusion criteria required participants to be 18 years or over. Mean age 32.8 years.
Treatment program	Treatment took place at five community-based treatment centres. Length of treatment varied across centres. Centres tended to offer weekly group sessions, few or no individual sessions were offered as part of standard treatment. <i>Participants randomly assigned to one of two treatment groups:</i> (1) Standard intake/evaluation session – followed by standard treatment (as offered at each Centre) (2) Standard intake/evaluation session + integrated MI (Motivational Interviewing) techniques (MI techniques were delivered by specifically trained clinicians drawn from the current staff) - followed by standard treatment (as offered at each Centre)
Measures	Measures were completed at: baseline (prior to randomisation), Follow-up at 28 days post randomisation and 84 days post-randomisation. <ul style="list-style-type: none"> – Analysis of urine and breath samples – Self-report of substance use - Substance Use Calendar/ Timeline Follow-back method – Brief version of ASI – The University of Rhode Island Change Assessment (URICA) measuring readiness to change – Abbreviated version of the Short Inventory of Problems (SIP-R) – modified from the Drinker Inventory of Consequences (DrINC) – HIV Risk Behaviour Scale (HRBS)
Outcomes (that can be compared with our study)	<i>Overall outcome:</i> Those in MI group had significantly better retention rates but no significant effects of MI on substance use outcomes. Days of substance use (past 30): Narratively reported: “for the group as a whole, there were significant reductions in frequency of substance use across time” (Discussion pg. 309) <i>Baseline:</i> 9.8 (<i>sd</i> 9.8) <i>28-day follow-up</i> (days of primary substance use): total across sites and treatment conditions not reported. <i>84-day follow-up</i> (days of primary substance use): total across sites and treatment conditions not reported For ASI composite scores (narrative report only, no means/data reported) for the combined sample (i.e., combined treatment groups and sites) repeated measures ANOVA indicated significant reductions in intensity of problems in all seven (medical, legal, employment, alcohol, drug, family & psychological) areas measured by the ASI over time for both the 28 day and 84 day follow-up.

	<p>For the URICA (readiness to change) there were no significant effects of time at the 28 day follow-up. At the 84 day follow-up there were significant effects of time only for the contemplation scale indicating a significant decrease in contemplation scores for participants overall.</p> <p>Baseline means for ASI measures and principal drug used (alcohol, marijuana etc) provided.</p> <p>ASI composite scores at baseline for total population:</p> <table> <tr> <td>Medical</td><td>0.27 (0.34)</td></tr> <tr> <td>Employment</td><td>0.72 (0.28)</td></tr> <tr> <td>Alcohol</td><td>0.21 (0.23)</td></tr> <tr> <td>Drug</td><td>0.11 (0.12)</td></tr> <tr> <td>Legal</td><td>0.19 (0.21)</td></tr> <tr> <td>Family</td><td>0.18 (0.22)</td></tr> <tr> <td>Psychological</td><td>0.27 (0.22)</td></tr> </table>	Medical	0.27 (0.34)	Employment	0.72 (0.28)	Alcohol	0.21 (0.23)	Drug	0.11 (0.12)	Legal	0.19 (0.21)	Family	0.18 (0.22)	Psychological	0.27 (0.22)
Medical	0.27 (0.34)														
Employment	0.72 (0.28)														
Alcohol	0.21 (0.23)														
Drug	0.11 (0.12)														
Legal	0.19 (0.21)														
Family	0.18 (0.22)														
Psychological	0.27 (0.22)														

Reviewed Study 4:

Title	Carroll, K. M., Easton, C. J., Nich, C., Hunkele, K. A., Neavins, T. M., Sinha, R., Ford, H. L., Vitolo, S. A. Doebrick, C. A., & Rounsaville, B. J. (2006b). The Use of Contingency Management and Motivational/Skills-Building Therapy to Treat Young Adults with Marijuana Dependence. <i>Journal of Consulting Psychology</i> , 74(5): 955-966.
Participants	USA Referred for treatment for marijuana dependence by criminal justice system and who met criteria for current marijuana dependence. N = 132 (208 screened, 174 meet criteria, 38 excluded or dropped out during screening process). Exclusion criteria included current psychotic disorder. Limited to 'young adults' 18-25 year-olds. Mean age 21 – 21.5 years.
Treatment program	Four treatment programmes: (1) motivational enhancement therapy/cognitive-behavioural therapy with contingency management (incentives) (2) motivational enhancement therapy/cognitive-behavioural therapy without contingency management (without incentives) (3) Individual drug counselling with contingency management (incentives) (4) Individual drug counselling without contingency management (without incentives) All treatments were manualised and delivered at the Sunstance Abuse Treatment Unit (Connecticut) by trained clinicians as individual weekly sessions over an 8-week period.
Measures	Participants were assessed at baseline, weekly during treatment, end of treatment (8 weeks), follow-up 3months and 6 months after end of treatment <ul style="list-style-type: none"> – Urinalysis (weekly) – Self-report substance use (weekly) – Timeline Followback Method (TLFB) – Current and lifelong psychiatric diagnoses (baseline) – Structured Clinical Interview for DSM-IV – Psychosocial functioning (baseline, 4wks into treatment, end of treatment, follow-up) – ASI
Outcomes (that can be compared with our study)	Main focus of analysis was on differences between treatment groups rather than across time periods. ASI composite (recent) scores: Significant time effect (i.e., severity scores reduced over time) reported for: marijuana, medical, legal, family & psychological composite scores. No significant time effect on reductions on employment, alcohol or drug use composite scores. Narrative only - no means reported. Self-report of use at end of treatment and follow-up: Effect for time was not significant – participants did not change their frequency of use between the end of treatment and 6-month follow-up. Effect of time for pre-treatment to post-treatment was not reported.

Reviewed Study 5:

Title	<p>COMBINE Study:</p> <p>COMBINE Study Research Group (2006). Combined pharmacotherapies and behavioural interventions for alcohol dependence. The COMBINE study: A randomized controlled trial. <i>Journal of the American Medical Association</i>, 295(17), 2003-2017.</p>
Participants	<p>USA</p> <p>1383 recently alcohol-abstinent volunteers from 11 US sites with diagnosis of primary alcohol dependence (DSM IV)</p> <p>Exclusion criteria included a history of other substance abuse (other than nicotine or cannabis) and psychiatric disorder requiring medication. Adults (no mention on age exclusion criteria)– mean age 44 years. Inclusion criteria included meeting DSM-IV criteria for alcohol dependence.</p>
Treatment program	<p>Participants randomised to one of:</p> <ul style="list-style-type: none"> (1) medical management + placebo (2) medical management + 16 weeks of naltrexone (100mg/d) (3) medical management + 16 weeks of acamprosate (3g/d) (4) medical management + 16 weeks of naltrexone (100mg/d) & acamprosate (3g/d) (5) medical management + combined behavioural intervention (CBI) + placebo (6) medical management + combined behavioural intervention (CBI) + 16 weeks of naltrexone (100mg/d) (7) medical management + combined behavioural intervention (CBI) + 16 weeks of acamprosate (3g/d) (8) medical management + combined behavioural intervention (CBI) + 16 weeks of naltrexone (100mg/d) & acamprosate (3g/d) (9) combined behavioural intervention (CBI) only
Measures	<p><i>Baseline:</i></p> <ul style="list-style-type: none"> – Structured interview <p><i>Treatment:</i></p> <ul style="list-style-type: none"> – Structured interviews also held during 9 medical management meetings (during the 16 weeks of treatment) – Two-hour assessments held at week 8 (mid treatment) & week 16 (end of treatment) <p><i>Follow-up:</i></p> <ul style="list-style-type: none"> – Two-hour assessments held at weeks 26, 52, 68 (1 year post-treatment) – 1 year after treatment - Alcohol consumption and craving assessed
Outcomes (that can be compared with our study)	<p><i>Overall outcome:</i> all groups showed substantial reduction in drinking. Significant difference between experimental groups dissipated at the 1 year follow-up.</p> <p>Baseline only data reported includes:</p> <ul style="list-style-type: none"> – Percent days abstinent – Drinks per drinking day – Overall drinks per day

– DrInC score

Time effects for pill taking groups:

Percent days abstinent from baseline to end of study tripled from 25.2% to 73.1% (p<.001)

Drinks per drinking day declined by 44% from 12.6 to 7.1 (p<.03)

Alcohol consumption decreased by 80% from 66 to 13 drinks per week

Analysis compares the 9 experimental groups for mean percent days abstinent and time to first heavy drinking day through to end of treatment.

Percent days abstinent at baseline, during treatment and at end of treatment – reported separately for each treatment group, summarised here as:

	Baseline	During 16 weeks treatment	Follow-up 1 year post treatment
Drug (pill) only	22.9% (24.7) – 29.8% (24.7)	73.8% (26.0) – 80.5% (26.0)	59.4% (32.4) - 68.1% (31.5)
Drug (pill) + CBI	23.7% (24.78) – 26.8% (24.7)	75.9% (26.0) – 79.8% (25.9)	64.2% (31.5) – 68.6% (31.7)
CBI only	23.5% (25.35%)	66.6% (27.1)	60.9% (32.6)

Reviewed Study 6:

Title	COMBINE study: LoCastro, J. S., Youngblood, M., Cisler, R. A., Mattson, M. E., Zweben, A., Anton, R. F., & Donovan, D. M. (2008). Alcohol treatment effects on secondary nondrinking outcomes and quality of life: The COMBINE study. <i>Journal of Studies on Alcohol and Drugs</i> , 186-196.																							
Participants	As above - COMBINE Study Research Group (2006). Combined pharmacotherapies and behavioural interventions for alcohol dependence. The COMBINE study: A randomized controlled trial. <i>Journal of the American Medical Association</i> , 295(17), 2003-2017.																							
Treatment program	As above - COMBINE Study Research Group (2006). Combined pharmacotherapies and behavioural interventions for alcohol dependence. The COMBINE study: A randomized controlled trial. <i>Journal of the American Medical Association</i> , 295(17), 2003-2017.																							
Measures	This paper covers the analysis of 11 measures of secondary nondrinking variables. Data reported was obtained from the structured interviews and self-report questionnaires at baseline, week 16 (end of treatment), week 26 (6 month follow-up) and week 52 (1 year follow-up). – Form 90 AIR/ED – mutual-help group attendance, percent days of paid work – Brief Symptom Inventory (BSI) – Perceived Stress Scale – Short Form-12 version 2 – physical health aggregate summary and mental health aggregate summary – World Health Organisation Quality of Life (WHO QoL-26) – domains of physical health, psychological health, social relationships, environment – Obsessive-Compulsive Drinking Scale – measure of craving																							
Outcomes (that can be compared with our study)	Drinking outcomes: (reported in narrative) <table border="1"> <thead> <tr> <th></th><th>Baseline</th><th>Week 16 (end of treatment)</th><th>Week 26</th><th>Week 52</th></tr> </thead> <tbody> <tr> <td>Percentage heavy drinking days PHDD</td><td>65.6%</td><td>16.0%</td><td>21.7%</td><td>26.4%</td></tr> <tr> <td>Drinks per drinking day DDD</td><td>12.5</td><td>7.1</td><td>8.0</td><td>8.6</td></tr> <tr> <td>Percentage days abstinent PDA</td><td>25.3%</td><td>74.6%</td><td>67.8%</td><td>62.7%</td></tr> </tbody> </table> Correlations between drinking and non-drinking secondary outcomes At baseline a greater number of correlations were reported between the non-drinking secondary outcomes and the drinking variable ‘drinks per drinking day (DDD)’ than the ‘percent heavy drinking days (PHDD)’ or ‘percentage days abstinent (PDA)’ variables. At the 16-week, 26-week and 52-week time points all three drinking outcomes (percent heavy drinking days (PHDD), drinks per drinking day (DDD) and percentage days abstinent (PDA)) were significantly correlated with the non-drinking secondary outcomes. In general, higher percent heavy drinking days (PHDD), more drinks per drinking day (DDD) and lower percentage days abstinent (PDA) are shown to be related to lower quality of life measures					Baseline	Week 16 (end of treatment)	Week 26	Week 52	Percentage heavy drinking days PHDD	65.6%	16.0%	21.7%	26.4%	Drinks per drinking day DDD	12.5	7.1	8.0	8.6	Percentage days abstinent PDA	25.3%	74.6%	67.8%	62.7%
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Percentage days abstinent PDA	25.3%	74.6%	67.8%	62.7%																				

and to more psychiatric symptoms and perceived stress.

See Tables 1 (Baseline and Week-16) & 2 (Week-26 & Week-52) (pg. 189 & 190) for correlation data.

Non-drinking secondary outcomes

See table 3 below - All secondary outcomes showed significant improvement from baseline to the end of treatment (week 16). Significant time differences across the baseline and 16, 26, and 52 week time periods indicated that the post-treatment improvements were mostly stable across time. Nearly all secondary outcomes remained significantly improved from baseline to the 26 week (6-month) and/or 52 week (1-year) follow-up time period. Exceptions – the percent days paid work returned to baseline level at the 52 week follow-up and the SF-12v2 physical health scores fell to below baseline at the 52 week time point.

Table 3 – extracted from pg. 191

Improvements in secondary outcomes over time (adjusted mean and (SE))

	Baseline	Week 16 (end of treatment)	Week 26	Week 52
BSI – global severity	60.34 (0.30)	52.41 ^a (0.37)	52.19 ^a (0.40)	51.89 ^a (0.41)
Perceived stress scale, total	5.79 (0.08)	4.16 ^a (0.10)	-	4.32 ^a (0.10)
Percentage days paid for work	87.65 (0.75)	91.93 ^a (0.61)	89.57 ^{a, b} (0.71)	87.55 ^{b, c} (0.79)
SF-12 physical health	52.65 (0.24)	53.61 ^a (0.21)	-	51.88 ^{a, b} (0.27)
SF-12 mental health	41.45 (0.32)	49.44 ^a (0.30)	-	48.01 ^{a, b} (0.34)
WHO QoL physical health	69.99 (0.47)	-	73.29 ^a (0.61)	76.85 ^{a, c} (0.54)
WHO QoL Psychological	59.38 (0.52)	-	64.44 ^a (0.65)	66.08 ^{a, c} (0.61)
WHO QoL Social relationship	56.88 (0.63)	-	65.53 ^a (0.68)	65.63 ^a (0.68)
WHO QoL Environmental	63.40 (0.55)	-	69.88 ^a (0.58)	69.91 ^a (0.58)
Craving, obsessive-compulsive total	25.35 (0.22)	10.10 ^a (0.27)	11.91 ^{a, b} (0.31)	-
Percentage days of mutual help meetings	13.37 (1.14)	22.01 ^a (1.24)	21.66 ^a (1.35)	21.97 ^a (1.44)

^a different from Baseline mean, $p < .05$

^b different from Week 16 mean, $p < .05$

^c different for Week 26 mean, $p < .05$

Non-drinking secondary outcomes adjusted for post-treatment drinking status

Results were repeated adjusting for post-treatment drinking status, i.e., percentage heavy drinking days (PHDD) at Week 16 (end of treatment) – results were nearly identical to that in Table 3 (above) – it appears that post-treatment improvements and stability of the secondary outcomes remained significant even after adjusting for post-treatment PHDD.

Overall: Both drinking outcomes and non-drinking secondary outcomes were found to improve with treatment and are generally maintained past the

	end of treatment. Results indicate that, on average, the observed improvements in non-drinking outcomes remain robust even after adjusting for post-treatment drinking status.
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Reviewed Study 7:

Title	Copeland, J., Swift, W., Roffman, R. & Stephens, R. (2001). A randomised controlled trial of brief cognitive-behavioral interventions for cannabis use disorder. <i>Journal of Substance Abuse Treatment</i> , 21, 55.64.
Participants	Australia N=229 adults recruited via advertisement (newspaper 7 radio) that promoted a treatment research program for people seeking assistance in abstinence from cannabis (Australia). Participants were not required to meet DSM-IV criteria for cannabis abuse/dependence but must have expressed a desire to cease cannabis use. Almost all (96.4%) received a current DSM-IV cannabis dependence diagnosis, while 100% were dependent according to the Severity of Dependence Scale (SDS). Exclusion criteria included individuals who reported more than weekly use of other drugs (not cannabis, nicotine or alcohol) and a score of more than 15 (associated with alcohol related social problems) on the AUDIT. Exclusion criteria also included those diagnosed on as DSM-IV Axis I if symptoms were unstable and impacted on their ability for participant satisfactorily. Inclusion criteria 18 years or over, mean age = 32.3 years.
Treatment program	Cognitive behavioural interventions emphasising the role of cognition, behavioural and environmental factors in drug dependence <i>Participants were randomised into one of the following groups:</i> (1) six session (6 x 1hrs) intervention (motivational interview + standard relapse prevention intervention) (6CBT) (2) one-session (90mins) intense version of above + self-help booklet (1CBT) (3) assessment & placement in a 24 week delayed-treatment control group (DTC) Goal for all groups was abstinence but other outcomes were assessed.
Measures	Some measures taken at Baseline & some at 24 weeks after treatment completion Measured used: – Structured clinical interview – Opiate Treatment Index (OTI) – Composite International Diagnostic Interview (CIDI) – Five item Severity of Dependence Scale (SDS) – Cannabis Problems Questionnaire (use in inappropriate situations, interactions with other people, psychological and motivational concerns, physical health, money and loss of interest in activities). – Symptom Checklist-90 revised version (SCL-90-R) – only data from the Global Severity Index scale of the SCL-90-R is reported – Beck Depression Inventory (BDI) – Timeline follow-back recall of use – Urine cannabinoid test
Outcomes (that can be compared)	Patterns of abstinence from cannabis use • 6.5% of participants who completed follow-up were continuously abstinent throughout the entire follow-up period (24 weeks)

with our study)	<ul style="list-style-type: none">• Mean percentage days abstinent between the last day of treatment and follow-up was 37.0% (SD=35.5)• Trend towards significant differences in the percentage of days abstinent across groups (Table 1)• Marginal effect in abstinence on the month prior to follow-up in favour of the treatment groups being more likely than the control group to report complete abstinence in the month leading up to follow-up (Table 1). <p>Extracted from Table 1 – Patterns of abstinence by treatment condition at baseline and follow-up</p> <table><tr><th rowspan="2"></th><th colspan="4">Baseline (%)</th><th colspan="4">Follow-up (%)</th></tr><tr><th>DTC</th><th>1CBT</th><th>6CBT</th><th>Total</th><th>DTC</th><th>1CBT</th><th>6CBT</th><th>Total</th></tr><tr><td>Percent days of abstinence to 24 week follow-up</td><td>-</td><td>-</td><td>-</td><td>-</td><td>29.7</td><td>44.8</td><td>35.9</td><td>37.0 (sd 35.5)</td></tr></table> <p>Cannabis related problems</p> <ul style="list-style-type: none">• Those in both intervention groups had significantly lower Severity of Dependence (SDS) scores at 24 week follow-up, with those receiving six session showing significantly greater decrease in scores than those in the one-session group (Table 2).• Proportion of cannabis-related problems reported by both treatment groups was significantly lower than the control group (Table 2). No comparison between follow-up scores and baseline made. Data below suggests a reduction in proportion of cannabis related problems.• After adjusting for baseline levels of distress, treatment had no impact on mean levels of psychological distress at follow-up – 6CBT & 1CBT did not decrease distress scores across the period compared to control (Table 2). <p>Extracted from Table 2 – Comparison of cannabis-related problems by treatment condition at baseline and follow-up</p> <table><tr><th rowspan="2"></th><th colspan="3">Baseline: Mean^a (SD)</th><th colspan="3">Follow-up: Mean^a (SD)</th></tr><tr><th>DTC</th><th>1CBT</th><th>6CBT</th><th>DTC</th><th>1CBT</th><th>6CBT</th></tr><tr><td>Daily amount of cannabis (OTI score)</td><td>2.2 (0.9)</td><td>2.0 (0.8)</td><td>2.1 (0.8)</td><td>1.8 (1.0)</td><td>1.5 (1.2)</td><td>1.3 (0.9)</td></tr><tr><td>Cannabis dependence (SDS score)</td><td>9.3 (2.6)</td><td>9.8 (2.9)</td><td>9.2 (3.2)</td><td>9.2 (3.2)</td><td>7.6 (4.4)</td><td>5.8 (4.3)</td></tr><tr><td>Proportion of cannabis related problems</td><td>45.4 (16.3)</td><td>42.2 (18.6)</td><td>42.4 (17.1)</td><td>39.1 (16.6)</td><td>28.4 (18.6)</td><td>23.0 (16.8)</td></tr><tr><td>Psychological stress (GSI score from SCL-90-R)</td><td>0.7 (0.3)</td><td>0.7 (0.4)</td><td>0.7 (0.3)</td><td>0.6 (0.4)</td><td>0.5 (0.4)</td><td>0.6 (0.3)</td></tr></table> <p>^a means have been adjusted for baseline levels of each variable (e.g., daily amount of cannabis has been adjusted for baseline consumption levels).</p>		Baseline (%)				Follow-up (%)				DTC	1CBT	6CBT	Total	DTC	1CBT	6CBT	Total	Percent days of abstinence to 24 week follow-up	-	-	-	-	29.7	44.8	35.9	37.0 (sd 35.5)		Baseline: Mean ^a (SD)			Follow-up: Mean ^a (SD)			DTC	1CBT	6CBT	DTC	1CBT	6CBT	Daily amount of cannabis (OTI score)	2.2 (0.9)	2.0 (0.8)	2.1 (0.8)	1.8 (1.0)	1.5 (1.2)	1.3 (0.9)	Cannabis dependence (SDS score)	9.3 (2.6)	9.8 (2.9)	9.2 (3.2)	9.2 (3.2)	7.6 (4.4)	5.8 (4.3)	Proportion of cannabis related problems	45.4 (16.3)	42.2 (18.6)	42.4 (17.1)	39.1 (16.6)	28.4 (18.6)	23.0 (16.8)	Psychological stress (GSI score from SCL-90-R)	0.7 (0.3)	0.7 (0.4)	0.7 (0.3)	0.6 (0.4)	0.5 (0.4)	0.6 (0.3)
	Baseline (%)				Follow-up (%)																																																															
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NOTES	For full description of participants at baseline see Copeland, J., Swift, W. & Rees, V. (2001). Clinical profile of participants in a brief intervention program for cannabis use disorder. <i>Journal of Substance Abuse Treatment</i> , 20, 45-52.																																																																			

Reviewed Study 8:

Title	Drummond, C., Coulton, S., James, D., Godfrey, C., Parrott, S., Baxter, J., Ford, D., Lervy, B., Rollnick, S., Russell, I. & Peters, T. (2009). Effectiveness and cost-effectiveness of a stepped care intervention for alcohol use disorders in primary care: pilot study. <i>The British Journal of Psychiatry</i> , 195, 448 – 456.
Participants	United Kingdom – University of York. N=1794 male attendees as six centres in Wales screened and N=112 participants who scored 8 or more on the AUDIT were selected. Inclusion criteria included diagnosis of an alcohol use disorder assessed using ICD-10 criteria at baseline. Exclusion criteria included having primary drug dependence other than alcohol, suffered from a severe mental or physical illness or severe cognitive impairment. Inclusion criteria limited to 18 years and over, mean age 43 years.
Treatment program	Randomised to one of the following groups: (1) 5 minutes of minimal intervention (control) (2) stepped care intervention (intervention group) consisting of (i) single session (40mins) of behaviour change counselling; (ii) four 50min sessions (1 per week) of motivational enhancement therapy; and (iii) referral to a community alcohol treatment agency.
Measures	Baseline, 6-month follow-up <i>Primary outcomes:</i> – Alcohol Use Disorders Identification Test (AUDIT) – ICD-10 criteria using the CIDI Alcohol Use Disorders interview – Time line Follow Back measure of alcohol consumption (over 180 days) – total alcohol consumed, mean number of drinks per drinking day & percentage of days abstinent <i>Secondary outcomes:</i> – Readiness to Change (RTCQ) – Severity of Alcohol Dependence Questionnaire [scores 0 (low) to 60 (high)] – Alcohol Problems Questionnaire (APQ) [scores 0 (low) to 23 (high)] – measures alcohol related problems covering the domains: friends, money, police, physical, affective, marital, children & work – Situational Confidence Questionnaire - self-efficacy – Short Form-12 (SF-12) – quality of life [scores 0 (low) to 100 (high)] <i>Economic evaluation:</i> – Cost of training – Cost of interventions – Changes in social costs – Changes in quality-adjusted life-years (QALYs)
Outcomes (that can be compared with our study)	<i>Primary outcomes:</i> • Both groups reduced alcohol consumption with a greater (but not significant) improvement for intervention group than the control group. • The standardised effect size for drinks per drinking day and total alcohol consumed were comparable with previous studies of brief intervention (0.27 & 0.23 respectively).

	<p><i>Secondary outcomes:</i></p> <ul style="list-style-type: none">• Motivation to change was greater following the stepped care intervention – intervention group scored significantly higher on action (see note below on different scoring of RTCQ).• Alcohol-related problems and dependence decreased and self-efficacy increased in both groups but none of these were significantly different between treatment groups. No significant differences in quality of life or mental health were seen between groups at follow-up. <p><i>Combination of Table 1 and Table 3:</i></p> <table><tr><td></td><td colspan="2">Baseline, mean (SE)</td><td colspan="2">6-month follow-up, mean^a (SE)</td></tr><tr><td></td><td>Intervention (n= 45)</td><td>Control (n=58)</td><td>Intervention (n=39)</td><td>Control (n = 52)</td></tr><tr><td>AUDIT score</td><td>13.6 (0.8)</td><td>13.3 (0.7)</td><td>--</td><td>--</td></tr><tr><td colspan="5"><i>Previous 180 days:</i></td></tr><tr><td>- Total drinks consumed in previous</td><td>1699.6 (194.8)</td><td>1423.0 (113.3)</td><td>1028.5 (94.1)</td><td>1174 (81.4)</td></tr><tr><td>- Drinks per drinking day</td><td>15.2 (1.1)</td><td>12.9 (0.8)</td><td>10.8 (0.7)</td><td>11.9 (0.6)</td></tr><tr><td>- Percent days abstinent</td><td>37.9 (3.8)</td><td>36.6 (3.4)</td><td>49</td><td>48.4</td></tr><tr><td colspan="5"><i>Readiness to Change Questionnaire:</i></td></tr><tr><td>- Pre-contemplation</td><td>0.4 (0.6)</td><td>-0.5 (0.5)</td><td>0.8 (0.5)</td><td>0.6 (0.4)</td></tr><tr><td>- Contemplation</td><td>0.6 (0.6)</td><td>1.0 (0.5)</td><td>0.4 (0.5)</td><td>0.7 (0.4)</td></tr><tr><td>- Action</td><td>0.1 (0.7)</td><td>0.6 (0.6)</td><td>2.0 (0.6)</td><td>0.2 (0.5)</td></tr><tr><td>Alcohol Problems Questionnaire</td><td>5.6 (0.6)</td><td>4.7 (0.4)</td><td>2.9 (0.3)</td><td>3.2 (0.3)</td></tr><tr><td>Severity of Alcohol Dependence Questionnaire</td><td>8.2 (0.9)</td><td>8.8 (1.2)</td><td>5.5 (0.7)</td><td>6.1 (0.6)</td></tr><tr><td>Situational Confidence Questionnaire</td><td>72.8 (18.0)</td><td>74.9 (17.8)</td><td>77.5 (1.5)</td><td>77.1 (1.3)</td></tr><tr><td colspan="5"><i>Quality of Life (SF-12):</i></td></tr><tr><td>- Physical health</td><td>40.5 (1.0)</td><td>40.6 (1.0)</td><td>39.5 (0.6)</td><td>39.7 (0.5)</td></tr><tr><td>- Mental health</td><td>45.6 (1.8)</td><td>49.2 (1.4)</td><td>50.5 (1.4)</td><td>49.9 (1.2)</td></tr></table> <p>^a all follow-up means reported here are adjusted to account for variability in corresponding baseline scores</p>						Baseline, mean (SE)		6-month follow-up, mean ^a (SE)			Intervention (n= 45)	Control (n=58)	Intervention (n=39)	Control (n = 52)	AUDIT score	13.6 (0.8)	13.3 (0.7)	--	--	<i>Previous 180 days:</i>					- Total drinks consumed in previous	1699.6 (194.8)	1423.0 (113.3)	1028.5 (94.1)	1174 (81.4)	- Drinks per drinking day	15.2 (1.1)	12.9 (0.8)	10.8 (0.7)	11.9 (0.6)	- Percent days abstinent	37.9 (3.8)	36.6 (3.4)	49	48.4	<i>Readiness to Change Questionnaire:</i>					- Pre-contemplation	0.4 (0.6)	-0.5 (0.5)	0.8 (0.5)	0.6 (0.4)	- Contemplation	0.6 (0.6)	1.0 (0.5)	0.4 (0.5)	0.7 (0.4)	- Action	0.1 (0.7)	0.6 (0.6)	2.0 (0.6)	0.2 (0.5)	Alcohol Problems Questionnaire	5.6 (0.6)	4.7 (0.4)	2.9 (0.3)	3.2 (0.3)	Severity of Alcohol Dependence Questionnaire	8.2 (0.9)	8.8 (1.2)	5.5 (0.7)	6.1 (0.6)	Situational Confidence Questionnaire	72.8 (18.0)	74.9 (17.8)	77.5 (1.5)	77.1 (1.3)	<i>Quality of Life (SF-12):</i>					- Physical health	40.5 (1.0)	40.6 (1.0)	39.5 (0.6)	39.7 (0.5)	- Mental health	45.6 (1.8)	49.2 (1.4)	50.5 (1.4)	49.9 (1.2)
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NOTES	<p>Readiness to Change (RTCQ) scored differently - “12-item RTCQ allocates scores for each of three stages of change: pre-contemplation, contemplation and action. Scores range from -10 (pre-contemplation) to +10 (action)” (p.450).</p> <p>Salvation Army project – we used the 12-item Readiness to Change Treatment Version designed for use with a population seeking treatment. This is scored to designate each participant to a stage of change. Items from each stage are added to give a score on a scale of -8 to +8. The highest score represents the Stage of Designation for that participant, 1 = pre-contemplation, 2 = contemplation & 3= action.</p>																																																																																									

Reviewed Study 9:

Title	Greenfield, S. F., Trucco, E. M., McHugh, R. K., Lincoln, M. & Gallop, R. J. (2007). The Women's Recovery Group Study: A Stage I trial of women-focused group therapy for substance use disorders versus mixed-gender group drug counselling. <i>Drug and Alcohol Dependence</i> , 90, 39-47.
Participants	USA Patients (n = 36 females) with current substance dependence recruited from hospital programs, advertisements and clinician referral. Exclusion criteria included psychotic disorder. Inclusion criteria included meeting current dependence diagnosis of a least one substance dependence (other than nicotine) based on the Structured Clinical Interview for DSM-IV (SCID). Inclusion criteria limited to 18 years and over, mean age 45 – 58.3 years.
Treatment program	12 week (once a week) group therapy treatment programme. Participants randomised to one of: (1) Women's Recovery Group (WRG) (n =29 females) (2) Mixed-gender Group Drug Counselling (GDC) (n = 7 females, 10 males)
Measures	Baseline (assessed for 60 days prior to interview) and then monthly for months 1-6 (months 1-3 in-treatment assessments; 4-6 post-treatment) and then again at month 9 (6-month post-treatment). – ASI – substance use data – The timeline Follow-Back – to supplement ASI data – Urine toxicology screens – to validate self-reports – The client satisfaction Questionnaire (CSQ-8)
Outcomes (that can be compared with our study)	<i>Overall outcome:</i> No significant differences in substance use outcomes between WRG & GDC treatments were found during the 12 week (in-treatment) programme. During 6-month post-treatment follow-up WRG participants demonstrated a pattern of continued reductions in substance use and reduction in average drinks per drinking day where GDC participants did not.

		Baseline		In-treatment phase (months 1-3)		Follow-up phase (months 4-6 & 9)	
		WRG (n = 29) Mean (S.E.)	GDC women (n=7) Mean (S.E.)	WRG (n = 29) Mean (S.E.)	GDC women (n=7) Mean (S.E.)	WRG (n = 29) Mean (S.E.)	GDC women (n=7) Mean (S.E.)
	Days any substance use	13.17 (1.87)	11.09 (2.11)	Reduction of 3.93 (1.53) days from baseline	Reduction of 1.74 (3.07) days from baseline	Reduction of 4.45 (1.32) days from baseline	Increase of 0.6 (3.03) days from baseline
	Drinking days	10.38 (1.42)	10.23 (1.80)	Decrease of 1.95 (0.98) days from baseline	Decrease of 0.23 (2.23) days from baseline	Decrease of 2.40 (0.95) days from baseline	Increase of 1.72 (2.17) days from baseline
	Drinks per drinking day	6.56 (0.93)	6.14 (1.18)	Reduction of 0.62 (0.72) drinks from baseline	Increase of 0.36 (1.64) drinks from baseline	Reduction of 1.19 (0.71) drinks from baseline	Increase of 1.66 (1.62) drinks from baseline
	ASI alcohol score	0.45 (0.05)	0.44 (0.11)	Improvement of 0.14 (0.04) from baseline	Improvement of 0.14 (0.10) from baseline	Improvement of 0.23 (0.04) from baseline	Improvement of 0.03 (0.10) from baseline (a reduction from during treatment)

Reviewed Study 10:

Title	<p>Project MATCH Research Group - Matching Alcoholism Treatment to Client Heterogeneity</p> <p>Project MATCH: Rational and methods for a multisite clinical trial matching patients to alcoholism treatment. <i>Alcoholism: Clinical and Experimental Research</i>, 17(6), 1993.</p> <p>Matching alcohol treatments to client heterogeneity: Project MATCH post treatment drinking outcomes. <i>Journal of Studies on Alcohol</i>, 58(1), 7-26, 1997.</p> <p>Matching patients with alcohol disorders to treatments: Clinical implication from Project MATCH. <i>Journal of Mental Health</i>, 7(6), 589-6002. 1998.</p> <p>Matching Alcohol Treatments to Client Heterogeneity: Project MATCH three-year drinking outcomes. <i>Alcoholism: Clinical and Experimental Research</i>, 22(6), 1300-1311. September 1998.</p> <p>Matching Alcoholism Treatments to Client Heterogeneity: Treatment Main Effects and Matching Effects on Drinking during Treatment. <i>Journal of Studies on Alcohol</i>. November 1998.</p> <p>A longitudinal model of intake symptomatology, AA participation and outcome: Retrospective study of the Project MATCH outpatient and aftercare samples. <i>Journal of Studies on Alcohol</i>. November 2001.</p> <p>Cutler, R. B., & Fishbain, D. A. (2005). Are alcoholism treatments effective? The project MATCH data. <i>BMC Public Health</i>, 75(5).</p>
Participants	<p>USA</p> <p>Two parallel independent randomised trials were conducted:</p> <p>(1) Clients recruited from outpatient settings ($n = 952$, 72% male)</p> <p>(2) Patients receiving aftercare treatment following inpatient or day hospital care ($n = 774$; 80% males)</p> <p>Exclusion criteria included acute psychosis and dependence on drugs other than alcohol (except marijuana) although it is noted that a sizable minority reported some type of illicit drug use in the 90 days prior to recruitment. Inclusion criteria included current DSM-III-R diagnosis of alcohol abuse or dependence.</p> <p>Inclusion criteria limited to 18 years and over, mean age 38.9 – 41.9 years.</p>
Treatment program	<p>12 week treatment program</p> <p><i>Three groups:</i></p> <p>(1) Twelve-step Facilitation (TSF)</p> <p>(2) Cognitive-Behavioural Coping Skills (CB)</p> <p>(3) Motivational Enhancement Therapy (MET)</p>

	<p>CB & TSF involved weekly treatment sessions (12 sessions in total)</p> <p>MET consisted of four sessions (week 1, 2,6 & 12)</p> <p>All treatment interventions were delivered in individual sessions.</p>
Measures	<p>Baseline measures collected prior to starting treatment. Participants followed at 3-month intervals for 1 year following completion of treatment.</p> <p>Measures used: (see Tables 1 & 2, 1993 paper)</p> <ul style="list-style-type: none"> – Screening interview – Brief clinical history – Addiction Severity Index (ASI) – only at baseline – California Psychological Inventory (CPI) – MacAndrew Alcohol Scale – Important People and Activities – Interpersonal Dependency Inventory (IDI) – Personal Attributes Questionnaire – Paragraph Completion Test – Computerised Diagnostic Interview Schedule (C-DIS) – State-trait Anger Scale – Differential Personality Questionnaire (DPQ) – AA Involvement Scale – Form 90 – Structured Clinical Interview for DSM-III-R (SCID) - (SCID = symptom counts from 1 to 9) – Drinker Inventory of Consequences – Blood tests – Urinalysis results – Alcohol Dependence Scale – DSM-III-R Alcoholism Symptoms – Alcohol Use Inventory – Psychosocial Functioning Inventory – Your Work Place – Computerised Diagnostic Interview Schedule – Beck Depression Inventory – Shipley Institute of Living Scale – Trail-Making Test – Symbol Digit Modalities Test

	<ul style="list-style-type: none"> – University of Rhode Island Change Assessment (URICA) – Alcohol Abstinence Self-Efficacy Scale (AASE) – Purpose on Life Test – Seeking of Noetic Goals (SONG) Test – Religious Background and Beliefs Questionnaire – SOCRATES Questionnaire – Perceived Social Support Questionnaire – Working Alliance Inventory (WAI) <p>Primary Outcomes:</p> <ul style="list-style-type: none"> – Changes in drinking patterns - % days abstinent (drinking frequency) PDA; drinks per drinking day (severity) DDD. – Functional status/quality of life – Treatment services utilisation
Outcomes (that can be compared with our study)	<p>1997 Paper</p> <p>Significant and sustained improvements in drinking outcome were achieved from baseline to 1 year follow-up. Little difference in outcomes by type of treatment. One attribute – psychiatric severity, demonstrated a significant attribute by treatment interaction – in the outpatient study clients low in psychiatric severity had more abstinent days after 12-step facilitation than after cognitive behavioural therapy suggesting psychiatric severity need be taken into account when matching clients with treatments.</p> <p>Baseline/Intake assessments (prior to treatment):</p> <p>Alcohol dependence symptoms measured by the SCID (90 days prior to enrolment)</p> <ul style="list-style-type: none"> • Outpatient Group Mean = 5.8 (sd 1.9) • Aftercare Group Mean = 6.8 (sd 1.9) <p>ASI composite psychiatric severity:</p> <ul style="list-style-type: none"> • Outpatient Group Mean = 0.19 (sd 0.19) • Aftercare Group Mean = 0.23 (sd 0.21) <p>Drinking from Baseline to Follow-up – percentage days abstinent</p> <p><i>Outpatient Group</i></p> <p>Baseline = abstinent 25-30% of days per month [extracted from graph, Figure 1, pg 15]</p> <p>Post-treatment = abstinent more that 80% of days per month [in narrative]</p> <p>15-month follow-up =abstinent 80% of the days per month [extracted from graph, Figure 1, pg 15] – slight decrease from the ‘more than 80% of days’ at post-treatment.</p>

	<p><i>Aftercare Group</i> Baseline = abstinent around 20% of days per month [in narrative] Post-treatment = abstinent more that 90% of days per month [in narrative] 15-month follow-up = slight decrement in abstinence [in narrative] abstinent 85-90% [extracted from graph, Figure 1, pg 15]</p> <p>Drinking from Baseline to Follow-up – drinks per drinking day</p> <p><i>Outpatient Group</i> Baseline = 11 -12.5 drinks per drinking day[extracted from graph, Figure 1, pg 15] Post-treatment = 2-3 drinks per drinking day [extracted from graph, Figure 1, pg 15] 15-month follow-up = 2-3 drinks per drinking day [extracted from graph, Figure 1, pg 15]</p> <p><i>Aftercare Group</i> Baseline = 15-20 drinks per drinking day [extracted from graph, Figure 1, pg 15] Post-treatment = 1-1.5 drinks per drinking day [extracted from graph, Figure 1, pg 15] 15-month follow-up = 1.5 – 2.5 drinks per drinking day [extracted from graph, Figure 1, pg 15]</p> <p>Cutler & Fishbain (2005) – re-analysed the MATCH data They express the view that Project MATCH was the largest and most expensive alcoholism trial ever conducted and that the results were disappointing with three very different treatment programmes producing similar outcomes. Conclusions were drawn by Project MATCH that all treatments were effective. Cutler & Fishbain (2005) re-analysed the data to investigate the effectiveness of treatment programmes in relation to the quantity (number of treatment sessions attended) of treatment. They conclude that current psychosocial treatments are not particularly effective stating that untreated alcoholics in clinical trials show significant improvements. They explain the improvements seen with treatment as partly due to selection effects rather than due to treatment, that is “participants who reduce their alcohol consumption are more likely to remain in treatment and those who continue drinking are more likely to drop out of treatment” (p. 8)</p>
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Reviewed Study 11:

Title	McCrary, B. S., Epstein, E. E. & Hirsch, L. S. (1999). Maintaining change after conjoint behavioural alcohol treatment for men: outcomes at 6 months. <i>Addiction</i> , 94 (4), 1381-1396.
Participants	USA 90 males with alcohol abuse or dependence (met DSM-II-R criteria) and their female partners. Exclusion criteria included diagnosis of psychosis (based on the psychosis & paranoia scales of the SCL-90) and meeting DSM-II-R criteria for other drug dependence. Inclusion criteria included reporting 4 or more positive responses on the Michigan Alcoholism Screening Test (MAST). Inclusion criteria limited to 'adults' (no mention of exact age limit), mean age 39.44 years.
Treatment program	Weekly (90min) outpatient session for 15 weeks. Randomly assigned to one of following groups: (1) Alcohol Behavioural Couples Therapy (ABCT) (2) Alcoholics Anonymous + ABCT (AA/ABCT) (3) Relapse Prevention + ABCT (RP/ABCT)
Measures	Screening: MAST – to assess alcohol problems SCL-90-R – psychosis Mini-mental State Exam - gross impairment in cognitive functioning Baseline: DAS – Dyadic Adjustment Scale – relationship satisfaction MHS – Martial happiness scale CIDI-SAM (Composite International Diagnostic Interview – Substance Abuse Module) – used to establish an alcohol-related diagnosis and provide measure of drinking related consequences TLFB – timeline follow-back interview –daily alcohol intake for 6 months prior to treatment Follow-up: (6 months) TLFB – timeline follow-back interview –daily alcohol intake for previous 30 days or length of time since last contact. Standardised monthly telephone follow-up interview – collected data on use of alcohol treatment, consequences of alcohol use including alcohol-related arrests or charges, hospitalisations, job losses or days missed work, separation or divorce and negative changes in residential status due to drinking.
Outcomes (that can be compared with our study)	Overall outcome: did not suggest additional benefit from combining AA with behavioural couple therapy Baseline outcomes reported for all participants: – MAST mean score of 27.14 (+/- 10.77) – CIDI-SAM mean of 24.02 (+/- 8.32) symptoms – Drank a mean of 59.67% (+/- 30.23) of days in past 6 months – Drank more than six drinks per day on 45.2% (+/- 33.02) of days prior to treatment – Prior alcohol-related medical problems reported by 41.1%

		Baseline			6 month follow-up		
		ABCT	AA/ABCT	RP/ABCT	ABCT	AA/ABCT	RP/ABCT
	% days abstinent (alcohol)	36.7 (<i>sd</i> 32) n = 21	33.4 (<i>sd</i> 24.3) n = 26	46.3 (<i>sd</i> 30) N = 24	82.4 (<i>sd</i> 25.3)	72.8 (<i>sd</i> 33.6)	82.6 (<i>sd</i> 24.5)
	% heavy (6 or more drinks) drinking days	45.2 (+/- 33.02)			6.1 (<i>sd</i> 11.3)	17.1 (<i>sd</i> 25.2)	9 (<i>sd</i> 17.0)
	<ul style="list-style-type: none">• Significant increase in days abstinent from baseline to 6 month follow-up ($F(1, 67) = 111.2, p < 0.0001$). No differences between conditions.• Significant reduction of heavy drinking days across time ($F(1, 66) = 78.42, p < 0.0001$). No differences between conditions.• Marital Happiness scores did not differ across the 6 months.• 65.7% of subjects were classified as improved on a composite measure of drinking and drinking-related consequences.						
NOTES	Compare their results as similar to: MATCH 1997 – reported a 78% abstinent days in the 3-6 month block post-treatment for the CBT condition O’Farrell et al (1993) reported 88% abstinent days						

Reviewed Study 12:

Title	McDonell, M. G., Srebnik, D., Angelo, F., McPherson, S., Lowe, J. M., Sugar, A., Short, R. A., Roll, J. M. & Ries, R. K. (2013). Randomised controlled trial of contingency management for stimulant use in community mental health patients with serious mental illness. <i>American Journal of Psychiatry</i> , 170 (1), 94-101.
Participants	USA (Seattle) N = 176 outpatients with serious mental illness and stimulant dependence. Inclusion criteria including meeting Mini International Neuropsychiatric Interview criteria for methamphetamine, amphetamine or cocaine dependence. Inclusion criteria limited 'adults' (no exact age criteria given), mean age 42.45 – 43.01 years.
Treatment program	Randomly assigned to one of: (1) Treatment as usual + 3 months of contingency management for stimulant abstinence (2) Treatment as usual + reinforcement for study participation Treatment as usual included mental health, chemical dependency, housing and vocational services. Clients had access to case manager once a week, psychiatric medication management and group treatments.
Measures	Measures taken during 3-month treatment and during the 3-month follow-up. <ul style="list-style-type: none"> – Structured psychiatric interview – Alcohol breath samples – Urine samples for drug testing – Addiction Severity Index-Lite version (ASI-lite) – Brief Symptom Inventory – psychiatric symptom severity – Positive and Negative Syndrome Scale – psychiatric symptom severity – HIV Risk Behaviour Scale
Outcomes (that can be compared with our study)	<ul style="list-style-type: none"> • Participants in the contingency management group were significantly more likely to drop out of treatment than the control. • Participants in the contingency management group were significantly more likely to submit a negative urine sample during treatment and during the follow-up period. • Participants in the contingency management group reported significantly fewer days of stimulant use during the treatment and the follow-up periods. • Participants in the contingency management group reported fewer days of alcohol use than those in the control group during treatment but not during follow-up. • All other measures of other drug use and ASI composite scores did not differ between groups. • Participants in the contingency management group reported lower levels of psychiatric symptoms on the Brief Symptom Inventory and lower ratings on the excitement subscale of the Positive and Negative Syndrome Scale during treatment than the control group. The groups did not differ significantly on these measures during the follow-up period.

	Baseline		During treatment		Follow-up	
	Contingency management Mean (sd)	Control Mean (sd)	Contingency management Mean (sd)	Control Mean (sd)	Contingency management Mean (sd)	Control Mean (sd)
<i>Days of substance use: past 30 days:</i>						
Alcohol	5.46	6.61	1.84 (4.77)	4.32 (8.43)	3.60 (7.92)	4.21 (7.86)
Amphetamines	0.65	1.84	0.91 (2.40)	4.67 (7.69)	1.83 (4.94)	3.65 (7.15)
Cannabis	3.55	2.99				
Opioids	1.72	0.89				
Cocaine	6.00	6.53				
Other drugs	0.30	1.66				
Brief Symptom Inventory			1.04 (0.79)	1.24 (0.71)	1.17 (0.85)	1.25 (0.79)
No data provided on time comparisons between baselines, end of treatment and follow-up.						

Reviewed Study 13:

Title	<p>Morgenstern, J., Blanchard, K. A., Morgan, T. J., Labouvie, E. & Hayaki, J. (2001). Testing the Effectiveness of cognitive-behavioural treatment for substance abuse in a community setting: Within treatment and post-treatment findings. <i>Journal of Consulting and Clinical Psychology</i>, 69 (6), 1007-1017.</p> <p>Morgenstern, J. Bux, D. A., Labouvie, E., Morgan, T., Blanchard, K. A. & Muench, F. (2003). Examining mechanisms of action in 12-Step community outpatient treatment. <i>Drug and Alcohol Dependence</i>, 72, 237-247.</p>
Participants	<p>USA</p> <p>N = 252 drug and alcohol abusers attending a community program that offered a three-tiered level of treatment. Inclusion criteria included meeting a DSM-IV substance use disorder. Exclusion criteria included gross cognitive impairment and psychiatric problems interfering with study participation. Inclusion criteria limited to 18 years and over, mean age 35.9 years.</p>
Treatment program	<p><i>Treatment setting:</i></p> <p>At the outpatient community setting clients were assigned, based on problem severity, to one of two treatment settings (add-on arm):</p> <ul style="list-style-type: none"> (1) partial hospitalisation – 20-30 hrs a week of group treatment in addition to the study intervention (below) (2) intensive outpatient – 9hr a week of group treatment in addition to study intervention (below) <p>Additionally, participants were recruited from various community venues including advertisements and community referral (stand alone):</p> <ul style="list-style-type: none"> (3) Standard outpatient – no additional intervention <p>In addition, as part of the study participants were randomly assigned to one of three treatment conditions all that included 12 weekly, individual counselling sessions of 40-60mins in addition to the treatment offered by the community centre:</p> <ul style="list-style-type: none"> (1) High standardisation CBT (2) Low standardisation CBT (3) treatment as usual
Measures	<p>Measure were taken at Baseline, end of treatment (month 3) & 6 –month post-treatment follow-up (month 9).</p> <p>Two primary variables were selected to assess outcomes at end of treatment and follow-up: (1) percentage of days abstinent (PDA) & (2) number of negative consequences (as assessed by the InDUC).</p> <p><i>Substance Abuse:</i></p> <ul style="list-style-type: none"> – Questionnaire covering demographics and previous treatments – Structured Clinical Interview for DSM-IV (SCID) – primary substance use was determined by taking the substance use diagnosis for which the participant met the greatest number of dependence symptoms. – Time-Line Follow=Back interview (TLFB) – alcohol and drug use 6 months prior to treatment, during 3-months of treatment and 6-month post-treatment.

	<ul style="list-style-type: none"> – Inventory of Drug Use Consequences (InDUC-2R) – baseline only – Addiction Severity Index (ASI) –alcohol, drug and psychiatric scores – baseline only <p><i>Intermediate outcomes:</i></p> <ul style="list-style-type: none"> – Helping Relationship Questionnaire – therapeutic alliance (end of treatment only) – Bond subscale of the Working Alliance Inventory (WAI-O) – rate the observed relationship between therapist and client – Treatment Evaluation Questionnaire – end of treatment – Participants self-report of improvement on a 5-point Likert scale <p>Confirmation of self-report data</p> <ul style="list-style-type: none"> – Collateral (significant other) interview – Urine screens <ul style="list-style-type: none"> – Global Assessment of Functioning (GAF) scale – University of Rhode Island Change Algorithm (URICA) – motivational stage – Addictions Treatment Attitudes Questionnaire (ATAQ) – commitment to abstinence subscale – Recovery Interview (RI) – self-help affiliation in past 30 days 																																																						
Outcomes (that can be compared with our study)	<ul style="list-style-type: none"> • Significant decrease in substance use from baseline (55% days abstinent) – participants reported being abstinent on 90% of days with-in the treatment period with a modest but significant decrease to 85% of the days during the 6-months post-treatment. • No significant differences in outcome between treatment conditions found. Treatment attendance and therapeutic alliance (factors common across different treatment conditions) accounted for a large portion of the variance. <p>Combination of Table 1 and data provided in narrative:</p> <table> <tr> <th></th><th>Baseline Mean (sd)</th><th>End of treatment Mean (sd)</th><th>6-month follow-up Mean (sd)</th></tr> <tr> <td><i>Participant characteristics:</i></td><td></td><td></td><td></td></tr> <tr> <td>Use days</td><td>45 (31)</td><td></td><td></td></tr> <tr> <td>Drinks per drinking day^a</td><td>13 (11)</td><td></td><td></td></tr> <tr> <td>ASI alcohol severity score (lifetime)^a</td><td>0.52 (0.21)</td><td></td><td></td></tr> <tr> <td>Years regular drinking^a</td><td>14.8 (10.6)</td><td></td><td></td></tr> <tr> <td>ASI drug severity score (lifetime)^b</td><td>0.22 (0.09)</td><td></td><td></td></tr> <tr> <td>Years regular drug use^b</td><td>9.76 (6.58)</td><td></td><td></td></tr> <tr> <td>Prior substance abuse treatment</td><td>64% yes</td><td></td><td></td></tr> <tr> <td>InDUC-2R score</td><td>56.5 (28)</td><td></td><td></td></tr> <tr> <td>ASI Psychiatric score</td><td>0.21 (0.22)</td><td></td><td></td></tr> <tr> <td><i>Substance Use Outcomes:</i></td><td></td><td></td><td></td></tr> <tr> <td>(1) Percentage days abstinent (PDA)</td><td>55.1 (31)</td><td>89.9 (22.1)*</td><td>84.6 (26.9)*,**</td></tr> </table>				Baseline Mean (sd)	End of treatment Mean (sd)	6-month follow-up Mean (sd)	<i>Participant characteristics:</i>				Use days	45 (31)			Drinks per drinking day ^a	13 (11)			ASI alcohol severity score (lifetime) ^a	0.52 (0.21)			Years regular drinking ^a	14.8 (10.6)			ASI drug severity score (lifetime) ^b	0.22 (0.09)			Years regular drug use ^b	9.76 (6.58)			Prior substance abuse treatment	64% yes			InDUC-2R score	56.5 (28)			ASI Psychiatric score	0.21 (0.22)			<i>Substance Use Outcomes:</i>				(1) Percentage days abstinent (PDA)	55.1 (31)	89.9 (22.1)*	84.6 (26.9)*,**
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	(2) Negative consequences <i>(as assessed by the inventory of drug use consequences)</i>	56.4 (13.9)	13.9 (22) [#]	15.1 (26.5) [#]
	Primary alcohol users only			
	Percentage days abstinent (PDA)		84.7 (25.9)	
	Negative consequences <i>(as assessed by the inventory of drug use consequences)</i>		15.2 (27.1)	
^a means computed for participants who had alcohol as their primary substance of use ^b means computed for participants who had a drug as their primary substance of use * significant increase from baseline p < .0001 ** significant decreased from end of treatment p < .0001 # significant decrease from baseline p < .0001				

Reviewed Study 14:

Title	Riper, H., Kramer, J., Smit, F., Conijn, B. Schippers, G. & Cuijpers P. (2007). Web-based self-help for problem drinkers: a pragmatics randomized trial. <i>Addiction</i> , 103, 218-227.																																					
Participants	Netherlands 261 adult problem drinkers (self-referred) Inclusion criteria limited to 18 years and over to 65 years (i.e., excluded if under 18 or over 65), mean age 46 years. Inclusion criteria included alcohol consumption that exceeded the limited specified by the pertinent Dutch guideline for low-risk drinking.																																					
Treatment program	Internet delivered self-help intervention (without therapist guidance) based on cognitive-behavioural and self-control principles. Recommended treatment period is 6 weeks. Participants randomised to one of: (1) experimental drinking less (DL) condition (2) Control condition (PBA) – received access to an online psychoeducational brochure.																																					
Measures	<p>Baseline measures:</p> <ul style="list-style-type: none"> – Six-item version of the Dutch 18-item alcohol problem questionnaire – to assess alcohol related problems – Validated version of the Readiness to Change Questionnaire (RCQ-D) <p>6-month follow-up:</p> <ul style="list-style-type: none"> – % participants who had reduced drinking to within normative limits of Dutch guideline for low-risk drinking – Reduction in mean weekly alcohol consumption 																																					
Outcomes (that can be compared with our study)	<p>Overall Outcome: The intervention showed to be effective in reducing problem drinking.</p> <table border="1"> <thead> <tr> <th rowspan="2"></th><th colspan="2">Baseline</th><th colspan="2">6 month follow-up</th></tr> <tr> <th>Experimental</th><th>Control</th><th>Experimental</th><th>Control</th></tr> </thead> <tbody> <tr> <td>Mean weekly alcohol intake</td><td colspan="2">43.6 (<i>sd</i> 21.6) standard units</td><td>Decreased by 15 units</td><td>Decreased by 2.9 units</td></tr> <tr> <td>Readiness to Change</td><td colspan="2">88.5% (<i>sd</i> 49.55) were in 'Contemplation' stage</td><td>Not reported</td><td>Not reported</td></tr> <tr> <td>Moderation/ abstinence</td><td colspan="2">93% aimed for moderation rather than abstinence</td><td>--</td><td>--</td></tr> <tr> <td>Professional help</td><td colspan="2">88% had never received professional help</td><td>--</td><td>--</td></tr> <tr> <td>Drinking within the limits of Dutch guidelines for low-risk drinking</td><td colspan="2"></td><td>17.2-18.5% success in reducing intake to within guidelines for low-risk drinking</td><td>5.4 – 4.9 success in reducing intake to within guidelines for low-risk drinking</td></tr> </tbody> </table>					Baseline		6 month follow-up		Experimental	Control	Experimental	Control	Mean weekly alcohol intake	43.6 (<i>sd</i> 21.6) standard units		Decreased by 15 units	Decreased by 2.9 units	Readiness to Change	88.5% (<i>sd</i> 49.55) were in 'Contemplation' stage		Not reported	Not reported	Moderation/ abstinence	93% aimed for moderation rather than abstinence		--	--	Professional help	88% had never received professional help		--	--	Drinking within the limits of Dutch guidelines for low-risk drinking			17.2-18.5% success in reducing intake to within guidelines for low-risk drinking	5.4 – 4.9 success in reducing intake to within guidelines for low-risk drinking
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Reviewed Study 15:

Title	Rosenblum, A., Magura, S., Kayman, D. J. & Fong, C. (2005). Motivationally enhanced group counselling for substance users in a soup kitchen: A randomised clinical trial. <i>Drug & Alcohol Dependence</i> , 80, 91-103.																																
Participants	USA (New York) N = 290 soup kitchen guests who reported drug or alcohol problems Inclusion criteria limited to 18 years and over, mean age 42 years. Inclusion criteria included reporting of past or current use of drugs or alcohol and current concerns about substance abuse.																																
Treatment program	Randomly assigned to: (1) Control Group: Information & referral (I&R) + peer advocacy (n=139) (2) Experimental Group: Information & referral (I&R) + peer advocacy + 12-session motivational group (3 sessions per week for 4 weeks) + 36 session cognitive-behavioural group (3 sessions per week for 12 weeks) SOAR (n=151)																																
Measures	Baseline & 5 months from beginning of treatment – Structured interview – including Time-line follow-back self-report of alcohol and drug use for past 30 days; previous participation in drug/alcohol treatment – Number of days drunk any alcohol – Days of heavy drinking – Days used cocaine/crack – Days used any drugs or alcohol – CES-D (8 item) - depression – Drug tests – hair &/or urine – HIV test																																
Outcomes (that can be compared with our study)	<ul style="list-style-type: none"> • Experimental group more likely to have reduced both drinking and heavy drinking at follow-up (no difference in groups in reduction of cocaine use). Paired comparisons between baseline and follow-up showed a significant decline in all substance-use measures except for heavy alcohol use among control participants. • Experimental intervention was more effective for participants with higher baseline substance abuse severity. <p>Extract from Table 4.</p> <table> <tr> <th rowspan="2"></th><th colspan="2">Baseline</th><th colspan="2">Follow-up (5 months from beginning of treatment)</th></tr> <tr> <th colspan="2">Mean days used (SD) per past 30 days</th><th colspan="2">Mean days used (SD) per past 30 days</th></tr> <tr> <th></th><th>Control (n=101)</th><th>Experimental (n = 105)</th><th>Control</th><th>Experimental</th></tr> <tr> <td>Heavy alcohol use</td><td>3.3 (8.0)</td><td>3.9 (8.9)</td><td>4.2 (9.3)</td><td>1.6 (5.4)*</td></tr> <tr> <td>Any alcohol use</td><td>14.3 (17.4)</td><td>11.2 (14.6)</td><td>8.1 (10.6)**</td><td>5.2 (8.8)**</td></tr> <tr> <td>Any substance use</td><td>13.9 (11.8)</td><td>14.0 (12.2)</td><td>10.3 (11.4)**</td><td>8.3 (10.8)**</td></tr> </table> <p>Differences between baseline and follow-up determined by paired <i>t</i>-test; * <i>p</i><.05, ** <i>p</i><.01.</p>					Baseline		Follow-up (5 months from beginning of treatment)		Mean days used (SD) per past 30 days		Mean days used (SD) per past 30 days			Control (n=101)	Experimental (n = 105)	Control	Experimental	Heavy alcohol use	3.3 (8.0)	3.9 (8.9)	4.2 (9.3)	1.6 (5.4)*	Any alcohol use	14.3 (17.4)	11.2 (14.6)	8.1 (10.6)**	5.2 (8.8)**	Any substance use	13.9 (11.8)	14.0 (12.2)	10.3 (11.4)**	8.3 (10.8)**
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Reviewed Study 16:

Title	Rosenblum, A., Matusow, H., Fong, C., Vogel, H., Uttaro, T., Moore, T. L. & Magura, S. (2014). Efficacy of dual focus mutual aid for persons with mental illness and substance misuse. <i>Drug and Alcohol Dependence</i> , 135, 78-87.																																
Participants	<p>USA (New York & Michigan)</p> <p>N= 203 substance user clients attending a mental health or dual-diagnosis facility.</p> <p>Inclusion criteria included DSM-IV diagnosis of mental illness and history of substance abuse. Exclusion criteria included diagnosis of mental retardation, showing overt psychotic symptoms.</p> <p>Inclusion criteria limited to 18 years and over, mean age 43 years.</p>																																
Treatment program	<p>Participants were clients at one of eight centres in New York City & Michigan. Settings were both residential and out-patient psychiatric facilities. All programs provided mental health services for people with single psychiatric diagnoses as well as for those with co-occurring mental illness and substance use disorders.</p> <p><i>Patients randomly assigned to one of:</i></p> <p>(1) Dual focus 12-step group (Double Trouble in Recovery, DTR) (n=113)</p> <p>(2) Waiting list control group (n=90)</p>																																
Measures	<p>Baseline measures</p> <p>Follow-up between 3 to 6 months (average follow-up 6.6 months in NYC & 4.6 months in Michigan)</p>																																
Outcomes (that can be compared with our study)	<p><i>Overall outcome:</i> Partial support for previous findings that associate exposure to DTR with reductions in substance use.</p> <p>Substance use (days used in past 30 days) [questions adapted from the ASI]</p> <table border="1"> <thead> <tr> <th rowspan="2"></th><th colspan="2">Baseline</th><th colspan="2">Follow-up</th></tr> <tr> <th>DTR</th><th>Control</th><th>DTR</th><th>Control</th></tr> </thead> <tbody> <tr> <td>Days any alcohol past 30</td><td>4.5 (<i>sd</i> 8.2)</td><td>6.5 (<i>sd</i> 9.6)</td><td>3.1 (<i>sd</i> 6.4)</td><td>6.1 (<i>sd</i> 8.8)</td></tr> <tr> <td>Days heavy alcohol past 30</td><td>2.6 (<i>sd</i> 6.1)</td><td>2.1 (<i>sd</i> 5.1)</td><td>1.1 (<i>sd</i> 2.8)</td><td>2.1 (<i>sd</i> 6.0)</td></tr> <tr> <td>Days any drugs past 30</td><td>6.9 (<i>sd</i> 9.3)</td><td>7.7 (<i>sd</i> 10.4)</td><td>5.5 (<i>sd</i> 9.2)</td><td>8.0 (<i>sd</i> 10.6)</td></tr> <tr> <td>Days any drugs or alcohol past 30</td><td>9.3 (<i>sd</i> 10.1)</td><td>11.9 (<i>sd</i> 11.2)</td><td>6.8 (<i>sd</i> 9.8)</td><td>11.3 (<i>sd</i> 11.1)</td></tr> </tbody> </table> <p>Improvements in use problems (Quality of Life), RQOL subscales for mental health & substance misuse. Not measured at baseline, only measured at follow-up and comparisons made between the two experimental groups.</p>					Baseline		Follow-up		DTR	Control	DTR	Control	Days any alcohol past 30	4.5 (<i>sd</i> 8.2)	6.5 (<i>sd</i> 9.6)	3.1 (<i>sd</i> 6.4)	6.1 (<i>sd</i> 8.8)	Days heavy alcohol past 30	2.6 (<i>sd</i> 6.1)	2.1 (<i>sd</i> 5.1)	1.1 (<i>sd</i> 2.8)	2.1 (<i>sd</i> 6.0)	Days any drugs past 30	6.9 (<i>sd</i> 9.3)	7.7 (<i>sd</i> 10.4)	5.5 (<i>sd</i> 9.2)	8.0 (<i>sd</i> 10.6)	Days any drugs or alcohol past 30	9.3 (<i>sd</i> 10.1)	11.9 (<i>sd</i> 11.2)	6.8 (<i>sd</i> 9.8)	11.3 (<i>sd</i> 11.1)
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Reviewed Study 17:

Title	Shakeshaft, A. P., Bowman, J. A., Burrows, S., Doran, C., M. & Sanson-Fisher, R., W. (2002). Community-based alcohol counselling: a randomised clinical trial. <i>Addiction</i> , 97, 1449-1463.																											
Participants	Australia 295 clients attending counselling at community-based drug and alcohol counselling centres Inclusion criteria limited to 17 years and over (i.e., 16 year olds excluded)																											
Treatment program	Randomly assigned to one of the following: (1) Brief intervention (BI) – completed within 6 week period and not to exceed 90mins of total face-to-face counselling time (2) Cognitive behaviour therapy for alcohol abuse – 6 consecutive weekly (45min) sessions																											
Measures	<p>Baseline & 6-month follow-up. Those who completed less than half the treatment protocol were not followed-up.</p> <ul style="list-style-type: none"> – Sample characteristics – including AUDIT score – Counsellor compliance with treatment – Client satisfaction with programme – Weekly alcohol consumption – clients were classified as low risk, hazardous, or harmful drinkers. – Binge alcohol consumption – assessed using a QF question – Alcohol related problems – Alcohol Problems Questionnaire – Composite measures – AUDIT – the proportion of clients scoring 8 or more at post-test relative to pre-test – Cost-effectiveness – Effectiveness index – devised and based on five drinking outcomes – weekly consumption, number of binge episodes, drinking intensity, number of alcohol-related problems and AUDIT score. For each drinking behaviour a self-report increase was allocated a score of one, no change allocated a score of two and decrease was allocated a score of three. For each client scores for each treatment outcome were summed and a mean per-client index score was calculated. 																											
Outcomes (that can be compared with our study)	<ul style="list-style-type: none"> • Significantly lower than baseline 6-month follow-up scores were found for weekly consumption, binge consumption, problems and AUDIT score for both treatment groups. • No significant differences found between BI & CBT treatment groups, except for cost-effectiveness with BI being significantly more cost-effective. <p>Extracted from Table 3 & 4 (categorical analysis i.e., proportion of clients at risk & on-treatment data – i.e., those who completed treatment)</p> <table> <tr> <th rowspan="2"></th><th colspan="2">Baseline: % at risk</th><th colspan="2">6-month follow-up: % at risk</th></tr> <tr> <th>BI (n=174)</th><th>CBT (n=148)</th><th>BI (n=174)</th><th>CBT (n=148)</th></tr> <tr> <td>AUDIT score greater than or equal to 8</td><td>95.1% (CI 86.3-99.0)</td><td>94.4% (CI 84.6-98.8)</td><td>60.7% (CI 48.3-73.1)</td><td>57.4% (CI 44.1-70.7)</td></tr> <tr> <td>Weekly consumption</td><td>42.6% (30.1-55.1)</td><td>48.2% (34.7-61.6)</td><td>16.4% (8.1-28.0)</td><td>18.5% (9.2-31.4)</td></tr> <tr> <td>Binge consumption (at</td><td>96.7% (88.7-99.6)</td><td>98.2% (90.1-100.0)</td><td>78.7 (66.4-88.2)</td><td>68.5% (56.0-81.0)</td></tr> </table>					Baseline: % at risk		6-month follow-up: % at risk		BI (n=174)	CBT (n=148)	BI (n=174)	CBT (n=148)	AUDIT score greater than or equal to 8	95.1% (CI 86.3-99.0)	94.4% (CI 84.6-98.8)	60.7% (CI 48.3-73.1)	57.4% (CI 44.1-70.7)	Weekly consumption	42.6% (30.1-55.1)	48.2% (34.7-61.6)	16.4% (8.1-28.0)	18.5% (9.2-31.4)	Binge consumption (at	96.7% (88.7-99.6)	98.2% (90.1-100.0)	78.7 (66.4-88.2)	68.5% (56.0-81.0)
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	least 1 episode in previous 30 days)				
	Binge consumption (at least 12 episodes in previous 30 days)	42.6% (30.1-55.1)	57.4% (44.1-70.7)	11.5% (4.7-22.2)	11.1% (4.2-22.6)
	Problems reported on Alcohol Problems Questionnaire	8.0 (6.1 – 9.9)	8.8 (6.7 – 10.9)	5.2 (3.7 – 6.8)	3.7 (2.4 – 5.0)
NOTES	Participant characteristics and data at baseline is reported in Shakeshaft, Bowman & Sanson-Fisher (2002). Community-based drug and alcohol counselling: who attends and why? <i>Drug and Alcohol Review</i> , 21, 153-162.				



Te Ope Whakaora

Access the full report online:

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